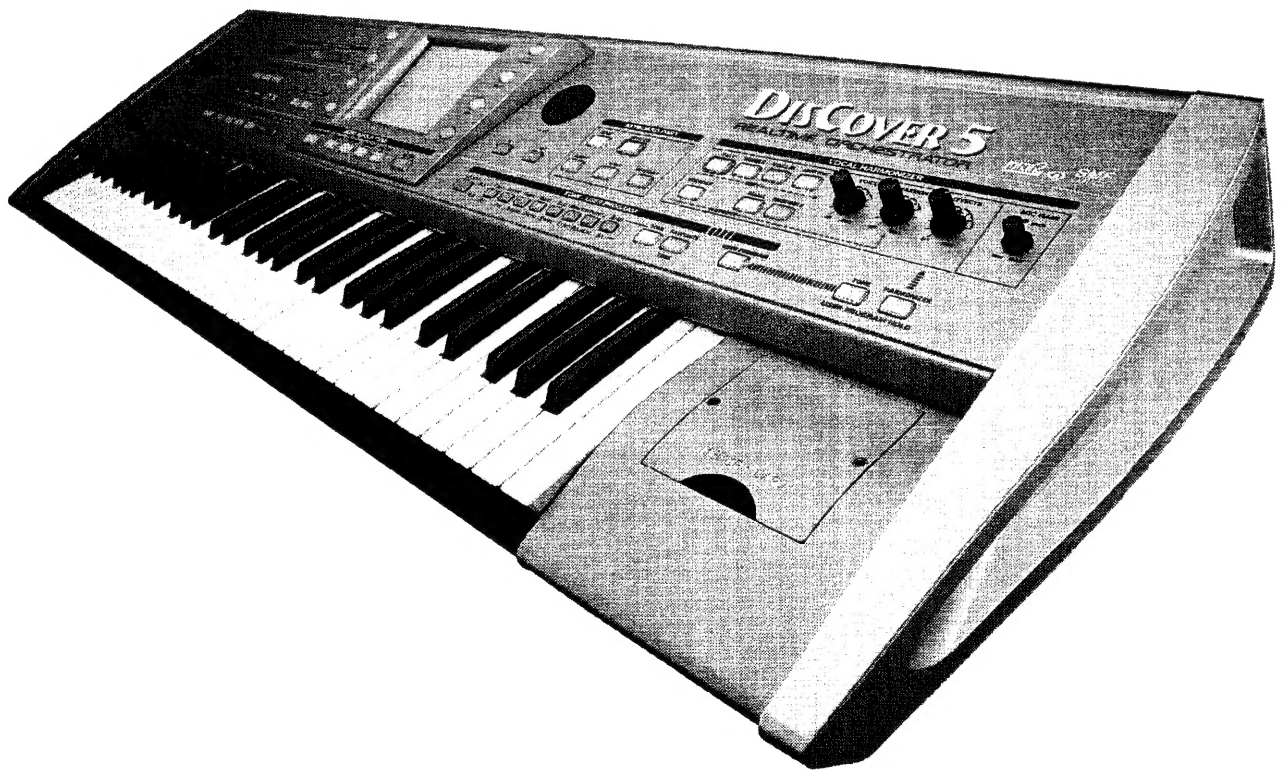



Roland®

DISCOVER 5


REALTIME ORCHESTRATOR



Owner's Manual



CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN



ATTENTION RISQUE DE CHOC ELECTRIQUE NE PAS OUVRIR

CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK,
DO NOT REMOVE COVER (OR BACK).
NO USER-SERVICEABLE PARTS INSIDE.
REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.



The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the product.

INSTRUCTIONS PERTAINING TO A RISK OF FIRE, ELECTRIC SHOCK, OR INJURY TO PERSONS.

IMPORTANT SAFETY INSTRUCTIONS

SAVE THESE INSTRUCTIONS

WARNING - When using electric products, basic precautions should always be followed, including the following:

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. Clean only with a dry cloth.
7. Do not block any of the ventilation openings. Install in accordance with the manufacturers instructions.
8. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
9. Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. When the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
11. Only use attachments/accessories specified by the manufacturer.
12. Never use with a cart, stand, tripod, bracket, or table except as specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.
13. Unplug this apparatus during lightning storms or when unused for long periods of time.
14. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.



For the U.K.

IMPORTANT: THE WIRES IN THIS MAINS LEAD ARE COLOURED IN ACCORDANCE WITH THE FOLLOWING CODE.

BLUE: NEUTRAL
BROWN: LIVE

As the colours of the wires in the mains lead of this apparatus may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows:
The wire which is coloured BLUE must be connected to the terminal which is marked with the letter N or coloured BLACK.
The wire which is coloured BROWN must be connected to the terminal which is marked with the letter L or coloured RED.
Under no circumstances must either of the above wires be connected to the earth terminal of a three pin plug.

Roland

DISCOVER 5

REALTIME ORCHESTRATOR



Owner's Manual

Thank you for choosing a Roland DisCover 5 Realtime Orchestrator, the perfect Standard MIDI File player for performing musicians with a professional Vocal Harmonizer function. The DisCover 5 allows you to play back Standard MIDI Files on SmartMedia™ card or floppy disk, and to change their orchestration in realtime, while you also have the flexibility to jump to four locations within every song, which allows you, for instance, to repeat any part of a song time and again.

The DisCover 5's Vocal Harmonizer is equally flexible: it can add harmonies to your singing based on the chords used by the songs you are playing back. You can also use it for gender transformations of your voice, for correcting not-so-perfect singing, and for a number of professional effects.

To get the most out of the DisCover 5 and to ensure many years of trouble-free service, we urge you to read through this Owner's Manual thoroughly.

To avoid confusion, let's agree to use the word "button" for all keys on the front panel, and use "key" only when referring to the DisCover 5's keyboard.

To save space (and time), let us agree to use the word "song" when referring to Standard MIDI Files.

Before using this instrument, carefully read the sections entitled "Important Safety Instructions" and "Important notes". They provide important information concerning the proper operation of the DisCover 5. Be sure to keep this manual in a safe place for future reference.

Features

The ease of Standard MIDI Files

Based on a thorough analysis of how most performing musicians work, Roland found that Standard MIDI Files were the most popular accompaniment (even on arranger-based keyboards), and so decided to design an instrument that takes mere playback one giant leap further.

The DisCover 5 is not just another Standard MIDI File player with a keyboard: it's a MIDI File wizard that allows you to do all kinds of things to song material you purchase or download from the Internet.

The DisCover 5 accepts 8MB, 16MB, 32MB, 64MB, and 128MB SmartMedia™ cards. You should therefore be able to build yourself a vast repertoire in no time.

Flexible song playback

Simply by selecting another "Cover" preset (of which there are 72), you can change the orchestration of the songs you are playing back, so as to transform, say, the original country version into a Viennese ballroom rendition.

It is also possible to just change the character of the drum or bass parts, if you feel your songs will sound better that way.

Of course, you can also program everything yourself so as to add your hallmark to pre-recorded material. The good news is that all changes can be carried out on the DisCover 5 itself. You do not need to resort to an external sequencer or software program.

Song Chain function and quick location of the songs you need

Thanks to the DisCover 5's Chain function, you can program play lists for your performances. The advantage of such song chains is that you won't have to look for the desired songs on stage.

But make no mistake: in the DisCover 5's case, not having to look for the next song to be played back is only designed to help you avoid choosing the wrong song, which can happen quite easily, as you may know. Realtime selection of Standard MIDI Files is indeed lightning-fast (courtesy of the Song Finder) and convenient (Play & Search function).

Furthermore, you can already prepare the next song while the current one is still running (NEXT SONG function).

And finally, you can also link one song to each User Program, so that the desired song will be loaded simply by recalling that User Program.

Professional Vocal Harmonizer

Another highlight of the DisCover 5 is its Vocal Harmonizer that adds automatic harmonies to your singing, while there are also several modes for transforming your (or someone else's) voice.

This implies, of course, that you can connect an optional (Roland DR-10 or DR-20) microphone to the DisCover 5. Other signal sources (synthesizers, etc.) can also be connected.

The signals generated by your singing and/or the Vocal Harmonizer can either be added to the signals of the OUTPUT sockets, or transmitted directly to one or two mixer channels (or additional amplifiers) via the dedicated VOCAL HARMONIZER OUTPUT sockets.

Dedicated effects sections

The DisCover 5 has dedicated (and completely separate) effects processors for the song and Keyboard parts, on the one hand, and the microphone and Vocal Harmonizer signals on the other.

These include: Reverb, Chorus, Delay, Compressor, Gate, and 2-band parametric equalizer.

Three Keyboard parts

Of course, you can also play on the DisCover 5's keyboard. To this end, your Realtime Orchestrator contains an Upper, Lower, and M.Drums part. Upper and Lower can be played together ("layered") or via separate keyboard areas ("Split"), whose split point is adjustable.

Intuitive user interface

The large touch screen keeps you posted about the DisCover 5's status and allows you to set almost all functions by touching the on-screen fields.

The DisCover 5's panel layout is just as intuitive and very cooperative indeed: it works hand-in-hand with the touch screen.

D-Beam controller

The DisCover 5 has the acclaimed D-Beam Controller* for intuitive song playback control and additional DJ-like effects via movements over an invisible beam of infrared light. And, of course, the BENDER/MODULATION lever is also there, as are sockets for optional footswitches and an expression pedal.

(* D Beam technology licensed from Interactive Light, Inc.)

Excellent sound source

The DisCover 5 comes with a 64-voice polyphonic sound source with 1,422 instrument sounds and 44 Drum Sets that cover everything from incredibly realistic acoustic instruments to cooking Techno sounds. Never before has an electronic instrument produced such true-to-life instrument and drum sounds that include subtle tonal changes and all the "noises" associated with acoustic instruments (scrapping for guitar sounds, resonance for drum sounds, etc.).

The DisCover 5 supports GS-, General MIDI2-, and XG-format MIDI files.

128 User Programs

User Programs are memories where you can save your own panel settings. These include the currently selected song, Tones (sounds), tempo, as well as a lot of other parameters. At the press of a maximum of three buttons, you can thus completely reconfigure your instrument.

For even more flexibility, User Program settings stored on SmartMedia™ card can be loaded directly, so that the number of "pre-sets" available on stage is almost unlimited.

...and so much more

Listing all of the DisCover 5's advantages and functions would take another ten pages, while you must be dying to put it through its paces. That is why we would like to ask you to read this manual from cover to cover. You'll find that the DisCover 5 is quite unlike any other instrument you know.

Have fun!




USING THE UNIT SAFELY

INSTRUCTIONS FOR THE PREVENTION OF FIRE, ELECTRIC SHOCK, OR INJURY TO PERSONS

About ⚠ WARNING and ⚠ CAUTION Notices









⚠ WARNING	Used for instructions intended to alert the user to the risk of death or severe injury should the unit be used improperly.
⚠ CAUTION	Used for instructions intended to alert the user to the risk of injury or material damage should the unit be used improperly. * Material damage refers to damage or other adverse effects caused with respect to the home and all its furnishings, as well to domestic animals or pets.

About the Symbols








	The ⚠ symbol alerts the user to important instructions or warnings. The specific meaning of the symbol is determined by the design contained within the triangle. In the case of the symbol at left, it is used for general cautions, warnings, or alerts to danger.
	The ⚡ symbol alerts the user to items that must never be carried out (are forbidden). The specific thing that must not be done is indicated by the design contained within the circle. In the case of the symbol at left, it means that the unit must never be disassembled.
	The ● symbol alerts the user to things that must be carried out. The specific thing that must be done is indicated by the design contained within the circle. In the case of the symbol at left, it means that the power-cord plug must be unplugged from the outlet.

ALWAYS OBSERVE THE FOLLOWING

⚠ WARNING

- Before using this instrument, make sure to read the instructions below, and the Owner's Manual. 
- Do not open or perform any internal modifications on the unit. 
- Do not attempt to repair the DisCover 5, or replace parts within it (except when this manual provides specific instructions directing you to do so). Refer all servicing to your retailer, the nearest Roland Service Center, or an authorized Roland distributor, as listed on the "Information" page. 
- Never use or store the DisCover 5 in places that are:
 - Subject to temperature extremes (e.g., direct sunlight in an enclosed vehicle, near a heating duct, on top of heat-generating equipment); or are 
 - Damp (e.g., baths, washrooms, on wet floors); or are 
 - Humid; or are
 - Exposed to rain; or are
 - Dusty; or are
 - Subject to high levels of vibration.
- This unit should be used only with a rack or stand that is recommended by Roland. 
- Make sure you always have the unit placed in such a way that it is level and sure to remain stable. Never place it on stands that could wobble, or on inclined surfaces. 
- The instrument should only be connected to a power supply of the type described in the operating instructions, or as marked on the DisCover 5. 

⚠ WARNING

- Do not excessively twist or bend the power cord, nor place heavy objects on it. Doing so can damage the cord, producing severed elements and short circuits. Damaged cords are fire and shock hazards! 
- This instrument, either alone or in combination with an amplifier and headphones or speakers, may be capable of producing sound levels that could cause permanent hearing loss. Do not operate for a long period of time at a high volume level, or at a level that is uncomfortable. If you experience any hearing loss or ringing in the ears, you should immediately stop using the unit, and consult an audiologist. 
- Do not allow any objects (e.g., flammable material, coins, pins); or liquids of any kind (water, soft drinks, etc.) to penetrate the unit. 

- In households with small children, an adult should provide supervision until the child is capable of following all rules essential for the safe operation of the DisCover 5. 
- Protect the unit from strong impact. (Do not drop it!) 
- Do not force the DisCover 5's power cord to share an outlet with an unreasonable number of other devices. Be especially careful when using extension cords—the total power used by all devices you have connected to the extension cord's outlet must never exceed the power rating (watts/amperes) for the extension cord. Excessive loads can cause the insulation on the cord to heat up and eventually melt through. 

⚠ WARNING

- Before using the DisCover 5 in a foreign country, consult with your retailer, the nearest Roland Service Center, or an authorized Roland distributor, as listed on the "Information" page.

**⚠ CAUTION**

- The DisCover 5 should be located so that its location or position does not interfere with its proper ventilation.



- This unit for use only with Roland keyboard stand KS-12. Use with other stands is capable of resulting in instability causing possible injury.



- Always grasp only the plug on the power-supply cord when plugging into, or unplugging from, an outlet or this unit.



- Try to prevent cords and cables from becoming entangled. Also, all cords and cables should be placed out of the reach of children.



- Never climb on top of, nor place heavy objects on the unit.



- Never handle the power cord or its plugs with wet hands when plugging into, or unplugging from, an outlet or this unit.



- If you need to move the instrument, take note of the precautions listed below. Make sure to have a firm grip, to protect yourself from injury and the instrument from damage.



- Disconnect the power cord.
- Disconnect all cords coming from external devices.
- Remove the music stand.

- Before cleaning the unit, turn off the power and unplug the power cord from the outlet.



- Whenever you suspect the possibility of lightning in your area, disconnect the power cord from the outlet.



- Should you remove screws, make sure to put them in a safe place out of children's reach, so there is no chance of them being swallowed accidentally.



1. Important notes

In addition to the items listed under "Using the unit safely" (p. 4), please read and observe the following:

Power supply

- Do not use this instrument on the same power circuit with any device that will generate line noise (such as an electric motor or variable lighting system).
- Before connecting the DisCover 5 to other devices, turn off the power to all units. This will help prevent malfunctions and/or damage to speakers or other devices.

Placement

- Using the DisCover 5 near power amplifiers (or other equipment containing large power transformers) may induce hum. To alleviate the problem, change the orientation of this instrument or move it further away from the source of interference.
- This instrument may interfere with radio and television reception. Do not use it in the vicinity of such receivers.
- Observe the following when using the unit's floppy disk drive. For further details, refer to "Before using floppy disks (handling the floppy disk drive)".
 - Do not place the unit near devices that produce a strong magnetic field (e.g., loudspeakers).
 - Install the DisCover 5 on a solid, level surface.
 - Do not move the unit or subject it to vibration while the drive is operating.
- Do not expose the DisCover 5 to direct sunlight, place it near devices that radiate heat, leave it inside an enclosed vehicle, or otherwise subject it to temperature extremes. Excessive heat can deform or discolor the instrument.
- To avoid possible breakdown, do not use the unit in a wet area, such as an area exposed to rain or other moisture.
- Do not allow objects to remain on top of the keyboard. This can be the cause of malfunction, such as keys ceasing to produce sound.

Maintenance

- For everyday cleaning wipe the DisCover 5 with a soft, dry cloth or one that has been slightly dampened with water. To remove stubborn dirt, use a mild, non-abrasive detergent. Afterwards, be sure to wipe the instrument thoroughly with a soft, dry cloth.
- Never use benzene, thinner, alcohol or solvents of any kind, to avoid the possibility of discoloration and/or deformation.

Repairs and data

- Please be aware that all data contained in the instrument's memory may be lost when it is sent for repairs. In certain cases (such as when circuitry related to memory itself is out of order), we regret that it may not be possible to restore the data. Roland assumes no liability concerning such loss of data.

Additional precautions

- Please be aware that the memory contents can be irretrievably lost as a result of a malfunction, or the improper operation of the instrument.
- Use a reasonable amount of care when using the instrument's buttons, other controls, and jacks/connectors. Rough handling can lead to malfunctions.
- Never strike or apply strong pressure to the display.
- When connecting/disconnecting cables, grasp the connector itself—never pull on the cable. This way you will avoid causing shorts, or damage to the cable's internal elements.
- A small amount of heat will radiate from the instrument during normal operation. This is perfectly normal.

- To avoid disturbing your neighbors, try to keep the instrument's volume at reasonable levels. You may prefer to use headphones, so you do not need to be concerned about those around you (especially late at night).
- When you need to transport the instrument, package it in the box (including padding) that it came in. Otherwise, you will need to use equivalent packaging materials, or a flightcase.
- Use only the specified expression pedal (EV-5, EV-7; sold separately). By connecting any other expression pedals, you risk causing malfunction and/or damage to the DisCover 5.

About the touch screen

- Wipe off stains on the touch screen using ethanol, but do not allow the ethanol to soak into the joint of the upper fume and the bottom glass, for it may otherwise cause peeling or malfunction. Do not use organic solvents or detergents other than ethyl alcohol (ethanol).

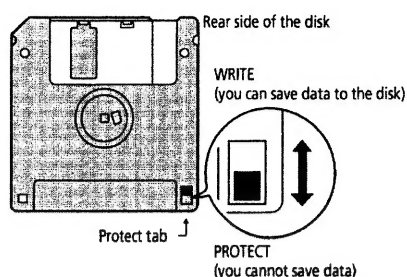
Before using floppy disks (handling the floppy disk drive)

- Install the unit on a solid, level surface in an area free from vibration. If the unit must be installed at an angle, be sure the installation does not exceed the permissible range: upward, 2°; downward, 18°.
- Avoid using the DisCover 5 immediately after it has been moved to a location with a level of humidity that is greatly different than its former location. Rapid changes in the environment can cause condensation to form inside the drive, which will adversely affect the operation of the drive and/or damage floppy disks. When the unit has been moved, allow it to become accustomed to the new environment (allow a few hours) before operating it.
- To insert a disk, push it gently but firmly into the drive—it will click into place. To remove a disk, press the EJECT button firmly. Do not use excessive force to remove a disk which is lodged in the drive.
- Never attempt to remove a floppy disk from the drive while the drive is operating (the indicator is lit); damage could result to both the disk and the drive.
- Remove any disk from the drive before powering up or down.
- To prevent damage to the disk drive's heads, always try to hold the floppy disk in a level position (not tilted in any direction) while inserting it into the drive. Push it in firmly, but gently. Never use excessive force.
- To avoid the risk of malfunction and/or damage, insert only floppy disks into the disk drive. Never insert any other type of disk. Avoid getting paper clips, coins, or any other foreign objects inside the drive.

Handling floppy disks

- Floppy disks contain a plastic disk with a thin magnetic coating. Microscopic precision is required to enable storage of large amounts of data on such a small surface area. To preserve their integrity, please observe the following when handling floppy disks:
 - Never touch the magnetic medium inside the disk.
 - Do not use or store floppy disks in dirty or dusty areas.
 - Do not subject floppy disks to temperature extremes (e.g., direct sunlight in an enclosed vehicle). Recommended temperature range: 10°~50°C (50°~122°F).
 - Do not expose floppy disks to strong magnetic fields, such as those generated by loudspeakers.

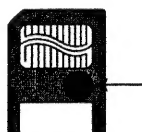
- Floppy disks have a "WRITE" tab which can protect the disk from accidental erasure. It is recommended that the tab be kept in the PROTECT position, and moved to the WRITE position only when you wish to write new data onto the disk.



- Disks containing important performance data for this instrument should always be locked (have their write protect tab slid to the PROTECT position) before you insert them into the drive of another instrument.
- The identification label should be firmly affixed to the disk. If the label comes loose while the disk is in the drive, it may be difficult to remove the disk.
- Put the disk back into its case for storage.

Before using a SmartMedia™ card

- Only SmartMedia cards formatted on the DisCover 5 can be used.
- Be sure to insert the memory card all the way into the slot.
- Do not touch the contacts of the memory card, or allow them to become soiled.
- Never remove the memory card or turn off the power while an operation—such as reading or writing data, or formatting—is being performed on the memory card. Never remove or connect the card while the DisCover 5 is on. Doing so can destroy the data on the memory card and/or render the memory card itself unusable.
- If you affix the write-protect label to the write-protect area of the memory card, you will not be able to format the card or write data to it. If you wish to format the card or write data to it, do so without the label affixed. For details on the write-protect sticker, refer to the owner's manual for your memory card.



- If you attempt to format a card or write data to it when the write-protect label is affixed, an error message will appear. In that case, either insert another card or remove the write-protect label.
- At power-on, do not remove/insert a SmartMedia card while the DisCover 5 is updating its internal data (wait until the messages "Song database checking..." and "User Program database checking..." have disappeared).
- Make sure that the memory card is oriented correctly, and push it all the way into the slot. The gold contacts must face downward.
- Never turn on the power when a memory card is inserted partway into the slot. Doing so will damage the data in internal memory.

Memory cards usable with the DisCover 5

- The DisCover 5 can use commercially available Smart Media memory cards. You can purchase such cards at a computer shop or digital camera dealer.
- Memory cards you purchase must meet the following conditions.
 - Power supply voltage: 3.3 V
 - Capacity: 4, 8, 16, 32, 64, 128MB
- The DisCover 5 cannot use SmartMedia of types other than the above.

Liability and copyright

- Should data contained and stored on the SmartMedia card be lost, it is unfortunately impossible to restore them. Roland Europe S.p.A. assumes no liability concerning such loss of data.
- Unauthorized recording, distribution, sale, lending, public performance, broadcasting, or the like in whole or in part, of a work (musical composition, video, broadcast, public performance, or the like) whose copyright is held by a third party is prohibited by law.
- Do not use this unit for purposes that could infringe on a copyright held by a third party. Roland assumes no responsibility whatsoever with regard to any infringements of third-party copyrights arising through your use of this unit.

- SmartMedia is a trademark of Toshiba Corp.
- All product names mentioned in this document are trademarks or registered trademarks of their respective owners.
- DisCover 5 IT. PAT. PEND.

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2. Panel descriptions

① BENDER/MODULATION lever

By performing left/right movements, you can bend your solo notes down (left) or up (right). Press this lever towards the rear of the DisCover 5 to add modulation (usually vibrato) to the notes you are playing.

② MASTER section

[VOLUME] knob: Use this knob to set the global volume of your DisCover 5.

[BALANCE] knob: This knob allows you to set the volume balance between the notes you play on the keyboard (KEYBOARD) and the song parts (SONG). Turn it towards the right if you think your solo is too soft.

③ D Beam controller

This controller allows you to influence the timbre of the notes you play, to control song playback, and to create some unique effects. All you need to do is move your hand up/down or left/right above the two "eyes". The buttons allow you to assign the desired function to the D Beam Controller. See p. 37.

④ PLAYER section

[CHAIN] button: Press this button to access the Chain display where you can select a song chain to be played back, edit existing chains, program new ones, etc.

When this button lights, are used to control playback of the current song.

[NEXT SONG] button: Press this button to select the next song you want to use, while the current one is still running. If the **[CHAIN]** button lights, this button allows you to select the next song of the selected chain.

[MINUS ONE] button: Press this button to switch off the part you want to play (or sing) yourself. The part to be muted is selectable (page 19).

: These buttons allow you to return to the beginning of the current song, "rewind" or fast-forward in one-measure steps, and to start and stop playback of the selected song.

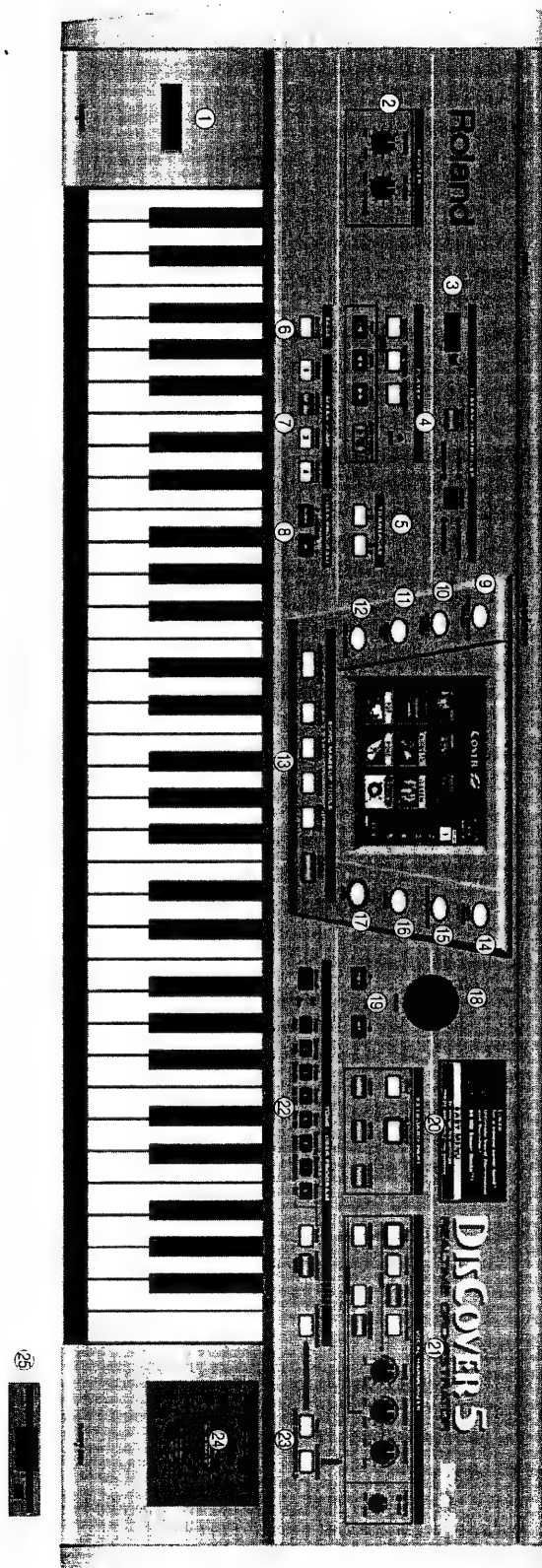
BEAT indicator: this indicator flashes at the speed of the currently-set tempo (the tempo value also appears in the display).

⑤ TRANSPOSE section

These buttons allow you to transpose the DisCover 5 up () or down () in semitone steps. You can also specify which parts are to be transposed (page 38). If neither button lights, no manual transposition is used.

⑥ FADE OUT/IN button

This button allows you to start playback with an automatic fade-in of the music. If you press it during playback, the volume will gradually decrease (fade-out).



⑦ MARK JUMP buttons [1], [2], [3], [4]

These buttons allow you to jump to one of four stored locations inside the currently selected song. The 132 songs on the supplied SmartMedia™ card already contain such locations for the verse ([1]), chorus ([2]), bridge ([3]) and ending ([4]). You can edit these, and also program the desired locations for songs that do not yet contain them.

⑧ USER PROGRAM buttons

These buttons allow you to select the previous ([DOWN]) or next ([UP]) User Program. User Programs are registration memories. By pressing these buttons simultaneously, you revert to the settings that were in effect before recalling the current User Program ("Cancel").

⑨ SONG/RHYTHM FINDER button

Press this button to quickly locate the desired Standard MIDI File on the inserted SmartMedia™ card or floppy disk. See page 70.

⑩ LYRICS & CHORD button

Press this button if you want the lyrics contained in the songs to appear in the display. At the same time, the chords of the notes played by the song parts will also be displayed. This, however, is information that is "extracted" (derived) in realtime by the DisCover 5.

⑪ SINGER KEY

This button provides access to a page where you can set and/or select the range to which the tonality of the songs should be adapted (page 28).

⑫ DISK/MEDIA button

Press this button if you wish to save/load data from a floppy disk or SmartMedia™ card. You will also find data management functions here, like deleting files, formatting floppies or cards, etc. (page 105).

⑬ SONG MAKEUP TOOLS buttons

These buttons allow you to modify the settings of the current song. See page 86.

The [COVER] button is especially interesting, because it provides access to pre-programmed templates that allow you to quickly modify a song's character. See page 19.

⑭ TONE FINDER button

Press this button to search for a suitable sound ("Tone") for your live playing using the Upper and/or Lower Keyboard parts.

⑮ MIXER/EFFECT button

This button provides access to the display pages where you can set the volume balance and effects of the DisCover 5 parts.

⑯ MENU button

Press this button to call up a menu that provides access to more in-depth DisCover 5 functions you may wish to set from time to time.

⑰ EXIT button

Press this button to return to the previously selected display page, or the DisCover 5's main page.

⑱ VALUE dial

This dial can be used to set the tempo or the value in the parameter field that is currently highlighted.

⑲ PREV & NEXT buttons

The [PREV] and [NEXT] buttons are used to select the previous or next value field on the current display page (if available).

⑳ KEYBOARD PART section

This section contains all buttons that are related to the music you can play on the DisCover 5's keyboard (i.e. the "Keyboard parts").

Press the [SPLIT] button to separate the keyboard into two halves. The left half is then assigned to the Lower part, and the right to the Upper part (page 32).

The [M.DRUMS] button is used to activate a part that allows you play drum and percussion solos via the keyboard (page 32).

The [LOWER] and [UPPER] buttons are used to switch the Keyboards parts of the same name on and off. Though you can play them simultaneously (if the [SPLIT] button doesn't light), these parts cannot be combined with the M.DRUMS part.

㉑ VOCAL HARMONIZER section

The buttons and knobs in this section are used to set the Vocal Harmonizer function, the microphone level and the effects applied to the signals received via the Vocal Harmonizer MIC INPUT socket.

㉒ TONE/USER PROGRAM section

These buttons allow you to select sounds ("Tones") for the Keyboard parts, or to recall the desired User Program (registration memory).

㉓ USER PROGRAM HOLD buttons

These buttons are used for ignoring the TONE and/or VOCAL HARMONIZER settings of subsequently loaded User Programs. If a button lights, the DisCover 5 will recall all User Program settings except the ones filtered by the active button.

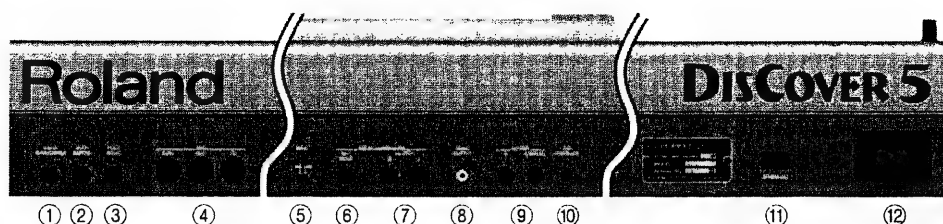
㉔ SmartMedia™ slot

This is where you need to insert the supplied or other SmartMedia cards. The DisCover 5 comes with a 64MB card packed with Standard MIDI Files and other useful settings. You can, however, also use 4, 8, 16, 32, 64 and 128MB cards.

㉕ Disk drive

This is where you insert floppy disks with Standard MIDI Files you may already own. The drive accepts 2DD (720k) and 2HD (1.44MB) floppy disks.

For your convenience, and to take advantage of the DisCover 5's powerful FINDER functions, we recommend copying all Standard MIDI Files to SmartMedia card.



① **HOLD FOOTSWITCH socket**

An optional DP-2, DP-6, or BOSS FS-5U footswitch connected to this socket can be used for holding the Upper-part notes. This function is also referred to as "Sustain" or "Damper".

② **FOOT SWITCH socket**

An optional DP-2, DP-6, or BOSS FS-5U footswitch connected to this socket can be used for various purposes: its function is programmable (page 43).

③ **FOOT PEDAL socket**

An optional EV-5 or EV-7 expression pedal connected to this jack can be used for controlling the volume of the DisCover 5's Keyboard parts.

④ **MIDI THRU/OUT/IN sockets**

These sockets allow you to connect the DisCover 5 to external MIDI devices for a variety of applications: receiving song data in realtime from an external sequencer, transmitting your playing (and the data of the song you are playing back) to an external sequencer, using the DisCover 5 as master keyboard in your MIDI setup, etc.

Note: The MIDI functions can be accessed via the DisCover 5's Menu (page 99). Frequently used MIDI settings can be written and recalled as "MIDI Sets".

⑤ **GAIN switch**

If you connect a microphone to the MIC INPUT socket, set this switch to "MIC". If you wish to try out the Vocal Harmonizer function for other signals (guitar, external synthesizers & modules, CDs, MDs, etc.), set this switch to "LINE".

Note: For the "LINE" setting to work with electric guitars or basses, you need to connect such instruments to an effects pedal or rack effect (in bypass mode), and connect the effect's output to the MIC INPUT socket.

⑥ **MIC INPUT socket**

This is where you need to connect an optional microphone (like a Roland DR-10 or DR-20) or other external signal source you wish to process using the DisCover 5's Vocal Harmonizer facility. See also "GAIN switch" above for setting the input sensitivity.

Note: The MIC INPUT socket is mono.

⑦ **Vocal Harmonizer OUTPUT R & L sockets**

If connected to a mixing console, amplifier, etc., these sockets transmit the signal received via the MIC INPUT socket and processed with the DisCover 5's Vocal Harmonizer facility. If no jacks are connected here, the Vocal Harmonizer signals will be transmitted via the OUTPUT sockets (see below).

⑧ **VIDEO OUTPUT socket**

Connect this socket to the appropriate socket of your TV or monitor. In that case, the lyrics of songs that contain such information, and the note information extracted in realtime (page 29) will be displayed on screen even if the **LYRICS&CHORD** button does not light (in which case the lyrics and chords no longer appear in the DisCover 5's display).

Note: The signal format (PAL or NTSC) can be set via a MENU function.

⑨ **OUTPUT R & L/MONO sockets**

These sockets need to be connected to an external amplifier, mixing consoles, etc. Depending on whether you are also using the Vocal Harmonizer OUTPUT sockets (see above), the present sockets either transmit only the music generated by Song and Keyboard parts, or both the tone generator's and Vocal Harmonizer's signals.

Note: If you can/want to use only one channel on your external amplifier, connect the L/MONO socket to its input. For optimum sound quality, we recommend working in stereo, though.

⑩ **LCD CONTRAST knob**

Use this knob to set the contrast when you are having problems reading what is written on the display. The LCD may take some time to warm up. That is why you may have to change the contrast several times after powering on.

⑪ **POWER ON button**

Press this button to switch the DisCover 5 on and off.

⑫ **AC socket**

This is where you need to connect the supplied power cord.

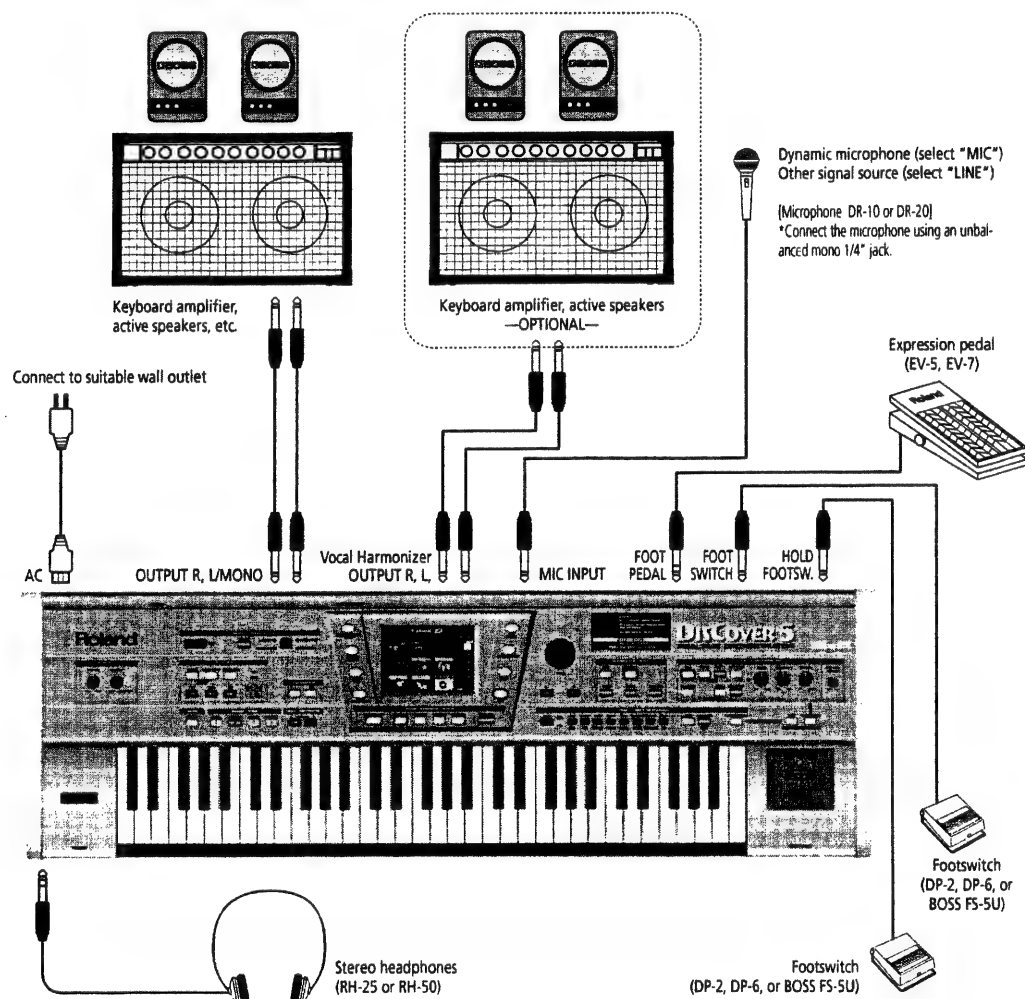
3. Touring your DisCover 5

You must be dying to try out your new DisCover 5 to see what it is capable of. We'll get to that in a minute. But first we need to connect it.

Connections

The DisCover 5 does not contain internal speakers. You therefore have to connect it to an external amplifier (Roland's KC series, for example), or use optional headphones (Roland RH-25 or RH-50, for example).

Be sure to switch off both the DisCover 5 and the external devices you want to connect before making or breaking audio and/or MIDI connections. If you do not have access to the sound system of the venue where you are performing, ask the local engineer to set the volume to the minimum level.

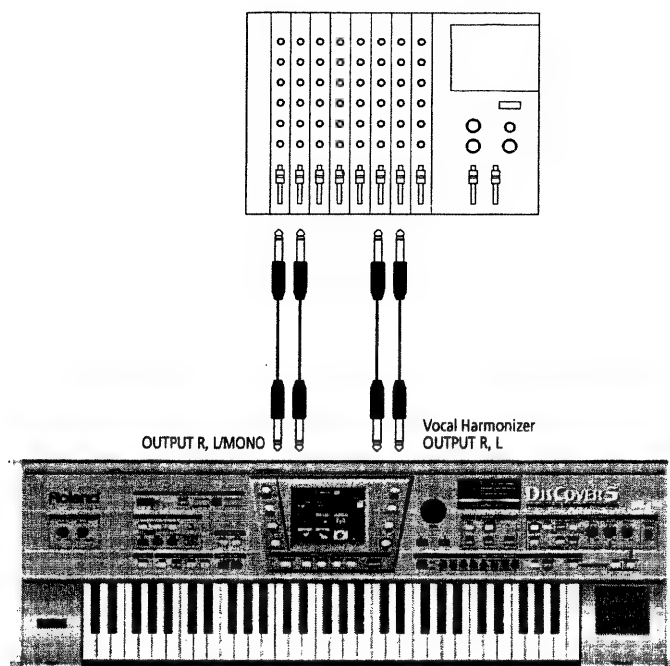


Note: Try to use dynamic microphones whenever possible. You can also connect a condenser microphone, however, provided you use a DI box (with power supply). Connect the microphone using an unbalanced mono 1/4" jack.

Note: Except for the power cable, all other items shown above are optional. See your Roland dealer for details.

Note: There is no absolute need to connect the Vocal Harmonizer OUTPUT sockets. If you don't, your singing and the Harmonizer effects will be transmitted via the main OUTPUT sockets. (Only if you don't connect anything to the Vocal Harmonizer OUTPUT sockets.) If you use these connectors, the Vocal Harmonizer signals are no longer transmitted to the headphones.

You can also connect the DisCover 5 to a mixing console, of course (see below).

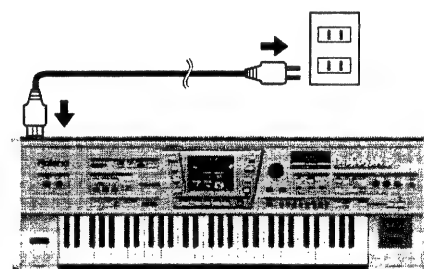


Switching the DisCover 5 on/off

After connecting the DisCover 5 to the other devices, proceed as follows:

Switching on the DisCover 5

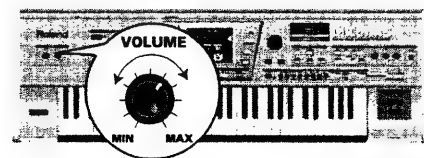
- (1) Insert the included power cable into the AC inlet and then plug it into an electrical outlet.



- (2) Press the DisCover 5's **POWER ON** button located on the rear panel to switch it on.



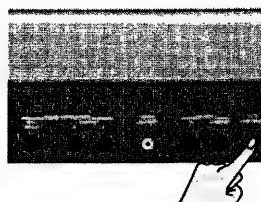
- (3) If you connected the DisCover 5 to a mixing console, switch it on now.
- (4) Switch on the amplifier, your active speakers, or the keyboard amplifier(s).
- (5) Use the **VOLUME** knob to set the DisCover 5's output volume.



Setting the display contrast

The information in the LCD display may be difficult to view after turning on your DisCover 5 or after extended use. Your viewing angle or the current lighting conditions can also affect the appearance of the display.

In such cases, use the **LCD CONTRAST** knob located on the rear panel to adjust the contrast of the display.



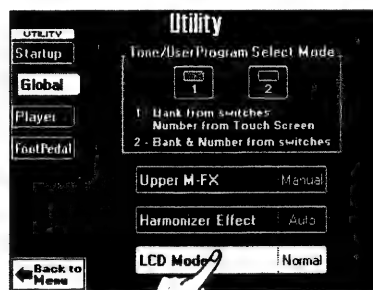
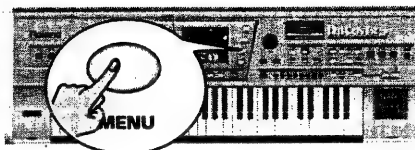
Switching off the DisCover 5

- (6) Switch off all external devices.
- (7) Use the DisCover 5's **POWER ON** button to switch it off.

LCD Mode

You can decide to have the information displayed white-on-blue (Normal) or blue-on-white (Invert). Choose whichever is more convenient for you:

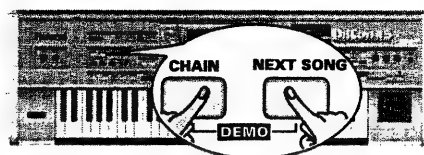
- (1) Press the **MENU** button.
- (2) On the display page that appears now, press the **UTILITY** field.
- (3) Press the **Global** field in the left corner.
- (4) Press the **LCD Mode** field.
- (5) Use the **VALUE** dial to select "Invert" (blue-on-white) or "Normal" (white-on-blue).
- (6) Press the **EXIT** button to return to the main page.



Interactive demo of the DisCover 5

Your DisCover 5 contains an interactive demo that introduces all of its highlights. It might be a good idea to try it out now. The demo is self-explanatory, so we'll just show you how to start and stop it.

- (1) Simultaneously press the **CHAIN** and **NEXT SONG** buttons.



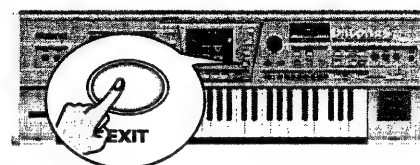
The display now looks as follows:



- (2) Press the field that provides access to the desired demo function.

There are 5 demo songs that are played back in a loop. If necessary, you can jump to the preceding or following demo song by pressing the **PREV** or **NEXT** button.

- (3) To stop the demo and leave the DisCover 5's Demo function, press the **EXIT** button.



- (4) If you can barely hear the music, set the **VOLUME** knob (far left, MASTER section) to a higher level.

Overview

Your DisCover 5 is a very user-friendly instrument indeed, but it is also extremely powerful. As we have to start somewhere (which may not be what you want to do first), here's an overview of where to find what for your first exploration of the DisCover 5:


What do you want to do first?

- Playing back songs → p. 16
- Modifying songs in realtime → p. 19
- Vocal Harmonizer function → p. 21
- Automatic transposition (Singer Key) → p. 28
- Displaying Lyrics and chord information → p. 29
- Using the Keyboard parts → p. 31
- Using the D Beam Controller → p. 37

Other aspects will be covered later in this manual.

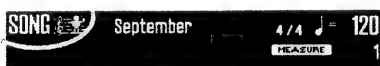
Playing back songs

Your Discover 5 is a novel Standard MIDI File player with all kinds of functions for "customizing" the songs you play back via easy-to-use routines. Let us first look at the playback functions proper.

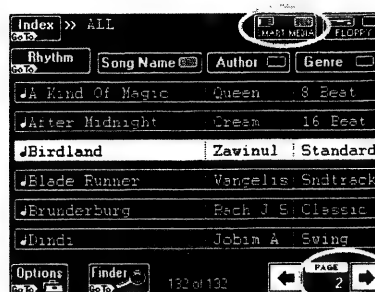
- (1) Connect the Discover 5 to your sound system.
If you prefer to use headphones, connect them to the PHONES socket to the left of the keyboard.
- (2) Insert the supplied SmartMedia™ card into the card slot.
- (3) Switch on the amp (if available) and the Discover 5.
You can press  at this stage to start playback of the first song on the card. (If no card is inserted, while a floppy disk is in the drive, the Discover 5 selects the first song on disk.) To select the song yourself, proceed as follows:
- (4) Press the **SONG/RHYTHM FINDER** button.





You can also press the **SONG** field in the upper left corner of the display (if available) to select songs.



The display changes to:

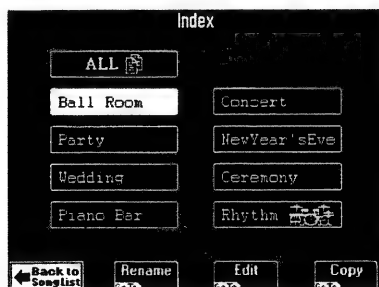


- (5) If it isn't already highlighted, press the **SMART MEDIA** field in the upper right corner.
The display shows a list of 6 songs (Standard MIDI Files) on the SmartMedia card.
If you prefer to listen to one of your own songs on floppy disk, insert it into the drive and press the **FLOPPY** field.
- (6) If the name of the song you want to listen to is already displayed, press its line.
In our example, "Birdland" has been selected.
- (7) To display the next 6 songs, press the  field in the lower right corner.
You can press this field as many times as necessary (or until it is no longer displayed).
To return to a previous group of 6 songs, press .

Quick location of the song you need

There are several ways to quickly locate the song you are after:

- Press the **Author** or **Genre** field under step (4) to sort the song files according to artist names (Author) or kind of music (Genre). Continue with step (5) to select the song you want to listen to.
- Press the **Index** field in the upper left corner.



Press one of the displayed field names to narrow down your search to songs that belong to the selected category ("Index").

Note: Press the **ALL** field to display all songs on the SmartMedia card.

The display now returns to the page shown under step (4) above. This time, however, only the songs belonging to the selected Index are displayed.

Continue with step (5) to select the song you want to listen to.

- If you only know the melody of the desired song, press the **Finder** field under step (4).



- Press the **Play&Search** field.



- As indicated in the display, play the main theme on the keyboard. You can play in any key, and the rhythm doesn't have to be perfect either (this function just looks for intervals).
- If you played a wrong note, press **Delete LastNote**.

Starting playback

- (8) To return to the main page, press **EXIT**.



The "main page" is the DisCover 5's display page that provides a maximum of relevant information and allows you to select (and change) items you may need during normal operation. It also displays the name of the selected song, the tempo, and the current measure.

Note: The player can muster up to 76,000 events. If the message "Too many events" is displayed, the selected song contains more than that number and cannot be played back.

Note: When playing back large SMFs at a very high tempo, playback may suddenly stop and the message "Song Scanning" may appear. This can be solved by reducing the playback tempo so that the DisCover 5 has enough time to process all MIDI data contained in the song.

Other practical playback functions

● MARK JUMP

Songs on the supplied SmartMedia card contain four locations ("markers") you can jump to right away. For songs that do not yet contain them, you can program these markers yourself. You can also edit the locations of existing markers (page 69).

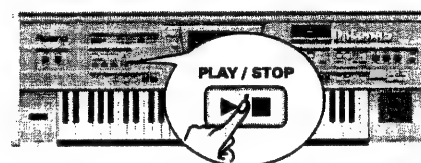
- To enter the entire line again, press **Reset** to erase the previously entered notes, then play the phrase again.
- After entering the melody, press the **SEARCH** field.

The display now returns to step (4) on page 16 and shows the names of the songs that contain the melody you played. If no songs were found, the following message appears, and all songs are once again displayed:



- Press the field of the song you want to play back.

- (9) Press the **PLAY / STOP** button.



Playback of the selected song starts.

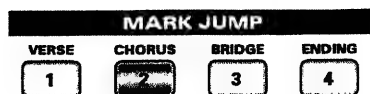
- (10) If necessary, use the **VALUE** dial to change the tempo.
To reset the song tempo, press the tempo field in the display.
- (11) Use the **VOLUME** knob to set the DisCover 5's output volume.



You can also play to the music. If necessary, use the **BALANCE** knob to set the desired balance.

Use the MARK JUMP **1~4** buttons (below the **PLAY / STOP** button) to select the position you want to jump to without stopping or delaying playback.

Such changes occur at the end of the current measure, which makes more musical sense than jumping when you're halfway into a measure.



The labels (VERSE, CHORUS, BRIDGE, ENDING) refer to the locations you jump to by pressing the corresponding button. Obviously, these labels may be meaningless for markers you programmed or edited yourself.

There are four such MARK memories.

The advantage of these markers is that you can return to the chorus, for example, if you notice that the audience wants the song to last a little longer than originally planned. Markers also allow you to change the song structure in real-time (by starting with the bridge, for example).

Note: These buttons may also come in handy for the songs of the Rhythm index. See page 70.

●Reset, rewind, fast-forward

You can also use the following buttons to jump to different song locations.



TOP: Allows you to return to the beginning of the current song.

BWD: allows you to rewind one measure at a time.

FWD: allows you to fast-forward one measure at a time.

These buttons are available both during playback and while playback is stopped.

●Next Song

While the current song is still running, you can already select the next one to be played back:

- Press the NEXT SONG button.

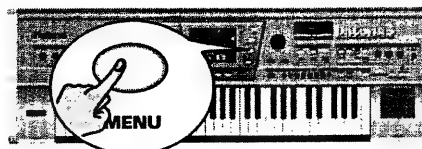


- Select the desired song using the Song Finder (page 16).
- As soon as the current song finishes, the next one starts. You can now select another song.
- Press the NEXT SONG button again to switch off this function.

Note: Your DisCover 5 also provides a Chain function for programming play lists of several songs (page 76).

●Player (GS Reset Send and Quick Start)

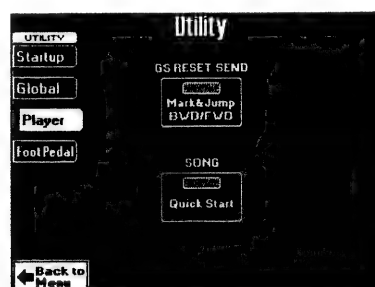
- (1) Press the MENU button.



The display changes to:



- (2) Press the UTILITY field. If the Player field in the left corner is not displayed in white, press it.



- (3) Switch the GS RESET SEND field to specify whether (on) or not (off) SysEx messages contained in the song you play back are updated while you fast-forward/rewind or use the MARK JUMP buttons.
- (4) Use the Quick Start field to quickly jump to the first note of the selected song. This function temporarily sets the tempo to $\text{♩} = 250$ – to race through empty measures at the beginning of the song file (which may contain important settings), thus avoiding that the newly selected song begins with two measures of "nothing" (which can be terribly long when you're in front of an audience). As soon as the DisCover 5 reaches the first note, the tempo returns to the programmed value.

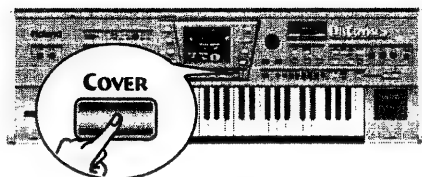
Modifying songs in realtime

Let us now look at some functions for customizing the songs you play back.

Using the Cover function

The COVER function provides "masks" that change the instrumentation of the selected song. Simply by selecting another preset, you can cause a Viennese waltz to be played back by a heavy metal band, etc. Even though the arrangement (rhythm, riffs) does not change, the songs' character can be modified beyond recognition.

- (1) Press the **COVER** button.



The display now looks more or less as follows:



- (2) Select the parts whose instrumentation you want to change:
Press the **ALL** field if all instruments should be replaced.

Press the **DRUM** field if only the drum and percussion instruments should change.

Press the **BASS** field if you're happy with everything but the bass line's sound.

- (3) Press one of the six fields in the lower half of the display to select another preset. After selecting a preset, you can press **Original Sounds** (page 1) to return to the original orchestration.
 - (4) If none of the displayed presets appeal to you, use the **PAGE 1~5** fields at the right to jump to another page with more presets.
 - (5) Try out various presets to see how (fast) this concept works.
 - (6) If you like the new version better than the original one, you can press the **SAVE** field to save the song to SmartMedia card or floppy with this information (page 107).
- Note:** The COVER information is part of the data only the DisCover 5 understands. You can still play back the newly saved version of this song on another sequencer or SMF player, but the COVER information will be ignored.

Minus One

"Minus One" means that (at least) one part of a song is not played back.

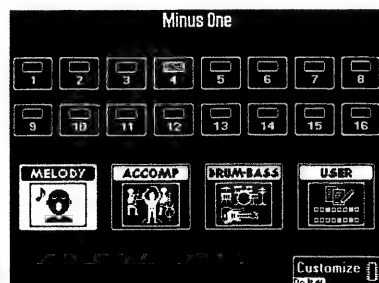
There are at least two applications for this function:

- it allows you to play the muted parts yourself, on the keyboard;
- it allows you to sing without doubling by the song (which may sound odd).

- (1) Press and hold the **MINUS ONE** button.



The display changes to:



- (2) Press one of the three "preset" fields to mute the corresponding song parts:

Press **MELODY** to mute the melody (you will notice that the **4** field also lights).

Press the **ACCOMP** field to mute everything but the melody, bass, and drums.

Press the **DRUM&BASS** field to mute the bass and drum parts.

Note: Even the "preset" fields can be used simultaneously. And the part fields **1~16** can be added, too.

- (3) To mute other parts "ad lib" (i.e. without taking advantage of the presets):
 - Press the **USER** field. This mutes all parts except **4** (the melody).
 - Switch on all parts you want to hear by pressing the **1~3** and **5~16** fields. Indicator icons of parts you need must be white (the others blue).

- To save this customized "Minus" setting in the DisCover 5's internal memory, press **Customize**.
The display now respond with:



- (4) Press the **EXIT** button to return to the main page.
Your last preset selection (MELODY~USER) will be used until you select another preset or until you switch off your DisCover 5.
- (5) Press **MINUS ONE** again to switch this function off.
- Note:** You can also switch the Minus One function on/off using an optional footswitch (page 43).

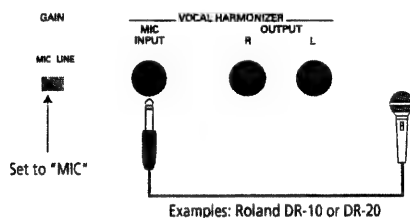
Vocal Harmonizer function

The Vocal Harmonizer is another major highlight of your DisCover 5. In fact, it doesn't just produce harmonies: it can also transform your voice in various ways. More importantly, its sound quality surpasses by far anything you may already have tried.

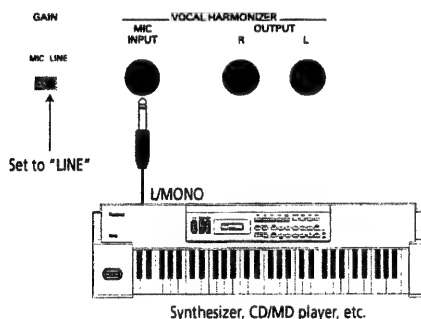
Setting up

Here's what you need to do to take advantage of the Vocal Harmonizer function:

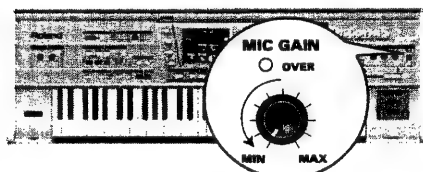
- (1) Switch off your amp and the DisCover 5 (in that order).
- (2) Connect a dynamic microphone to the MIC INPUT jack on the DisCover 5's rear panel.



- (3) Set the **GAIN** switch to "MIC". You can also connect the (mono) output of other instruments, a CD player, etc. In that case, you need to set **GAIN** to "LINE".



- (4) Set the **MIC GAIN** knob on the front panel to "MIN".



Note: If you like, you can connect the Vocal Harmonizer OUTPUT sockets to another amp (or additional mixer channels).

- (5) Switch on the DisCover 5 and your amp (in that order).

- (6) Press the **SINGER** button (it must light) and switch off the **VOCODER**, **SMALL** or **ENSEMBLE** button.



- (7) Sing into the microphone and gradually increase the **MIC GAIN** setting. Set it to the highest possible value, taking care to avoid that the OVER indicator lights. It would be best to sing at the level you will be using during your performances.
- (8) If your singing is inaudible in the speakers connected to the amp (or the headphones), turn the **VOICE** knob towards the right (towards "MAX").

Note: If a howling sound (a.k.a. "feedback") is produced, your microphone may be pointed at a speaker. Try to orient it differently, or slightly reduce the **VOICE** setting.

- (9) Use the **EFFECTS** knob to set the balance between your original singing and the effects that are added to your voice.

Note: You can start song playback and sing to it. See "Playing back songs" (p. 16) and "Minus One" (p. 19) for details.

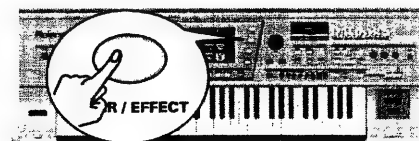
► Compressor, Gate, and effects

Your DisCover 5 provides a Compressor effect you might want to set up now. The Compressor reduces volume peaks and thus "levels out" differences in the microphone signal.

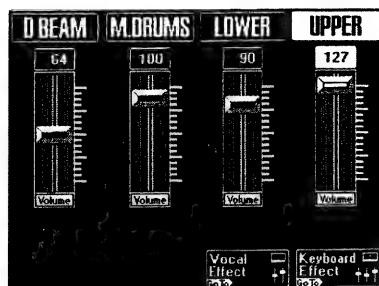
The Gate effect, on the other hand can be used to avoid that background noises cause the Vocal Harmonizer, etc., to start working even though you are not singing.

These two effects are located immediately behind the MIC INPUT socket and thus applied to the microphone signal **before** it is processed by the Vocal Harmonizer section.

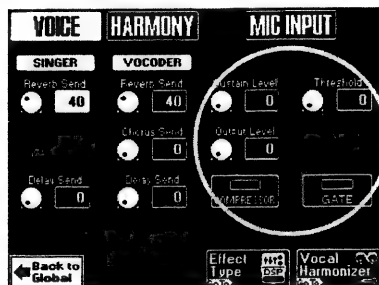
- (10) Press the **MIXER/EFFECT** button.



The display changes to:



- (11) Press the **Vocal Effect** field.



Note: Since you pressed the **SINGER** button in step (6) above, the left-most column is called "SINGER" here. It may also be called "TALK", "VOICE-FX", or "AUTO TUNE". Though that is of little importance for what we are about to do, it proves that your DisCover 5 is in fact a very clever instrument helps you save time.

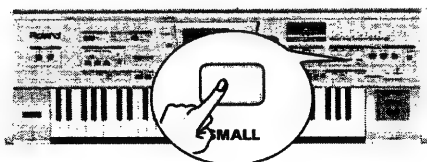
- (12) If you need the Compressor, press the **Compressor** field, so that its indicator icon is highlighted.
- (13) If you also want to use the Gate, press the **GATE** field (its indicator icon must be highlighted).
- (14) Use the **PREV** and **NEXT** buttons to select the parameter you wish to edit, and set the desired value with the **VALUE** dial.

Adding harmonies to your singing

Now that your microphone is up and running, let's look at the Harmonizer effect proper.

The DisCover 5 provides two harmony types: "Small" (1 or 2 additional voices) and "Ensemble" (3 or 4 additional voices).

- (1) Connect your microphone, press the **SINGER** button, set the desired **VOICE** level, and...
- (2) ...press the **SMALL** button (it must light).



- (3) Sing a few notes and listen to the harmonies produced.
- (4) If the harmonies are too soft, turn the **HARMONY** knob towards the right (towards "MAX").

Parameter fields can also be selected by pressing them.

It is **very important** that you keep singing while setting the following parameters.

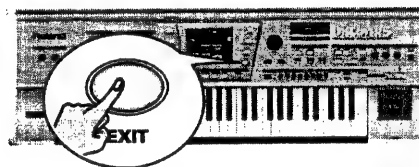
Sustain Level: Use this parameter to specify how fast the compressor stops working once the microphone level drops below the Compressor's threshold. This should be set in such a way as to avoid unpleasant level jumps between notes. Set it in combination with the following parameter to obtain the best possible result.

Output Level: The Compressor reduces the dynamics (level differences) of your singing. This parameter serves two purposes: it allows you to specify how strongly your voice should be compressed, and -as you increase the value- it raises the compressor's output volume to make up for the lower resulting level.

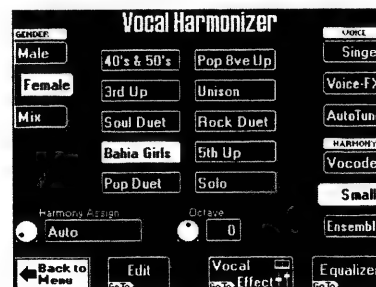
Note: The value "0" means that the Compressor is not working.

Threshold: This parameter allows you to set the level the microphone signal must have in order to be audible. Softer signals will be muted (suppressed) by the Gate.

- (15) Press the **Vocal HARMONIZER** field to jump to a page where you can select different pre-sets, etc. (see below).
- (16) Press the **EXIT** button to return to the main page.



- (5) To try out different harmonizations, press and hold the **SMALL** button.
- The display changes to:



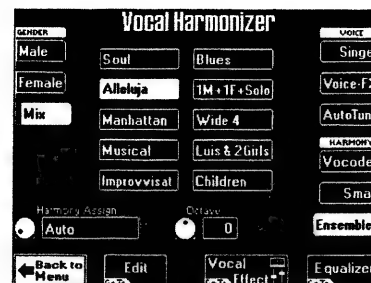
- (6) Press the **Male**, **Female** or **Mix** field to change the "GENDER" (voice type) of the harmonies produced.
- Mix** adds both a male and a female voice.

This also changes the available preset options in the center of the display. If, on the above page, you press **[Mix]** for example, the display changes to:



- (7) Press one of the preset fields (**[Walkin'Vox]**, for example) to select a different harmony type.
- (8) Now press the **[ENSEMBLE]** button and sing again.
This sounds more like a choir, don't you agree?
- (9) Press and hold the **[ENSEMBLE]** button.

The display changes to:



You already know what the **[Male]**, **[Female]**, and **[Mix]** fields are for. The 10 preset fields in the middle allow you to select different "voicings" and voice characters for your choir.

- (10) To sing again without automatic harmonies, press the **[SMALL]** or **[ENSEMBLE]** button again (so that neither of them lights).

Note: Obviously, you do not have to use a song as backing; you can also play the accompaniment yourself. See page 31 and below.

Who specifies the harmonies?

Now that you know what the Vocal Harmonizer does, let us briefly look at how it does that.

You may have noticed the **[Harmony Assign]** field in the lower left corner of the above display pages.



Its current (default) setting is "Auto". This means that, during song playback, the note information contained in the song data will be used for specifying the pitches of the harmony notes ("Auto Harmony").

Note: If the song you are playing back contains a "Harmony track", the harmonies will be based on those notes. In all other cases, the harmonies are generated in realtime.

If you stop song playback and play chords on the keyboard, the note information thus generated is used for the harmony pitches.

Use the **[VALUE]** dial to select another setting. The possibilities are:

Keyboard (all)	Only notes played on the keyboard will be used for specifying harmony pitches.
Keyboard Left	Only notes played to the left of the split point (page 32) will be used for specifying harmony pitches.
Keyboard Right	Only notes played to the right of the split point (page 32) will be used for specifying harmony pitches.
Song	The note information contained in the song you are playing back is used.

Not convinced so far?

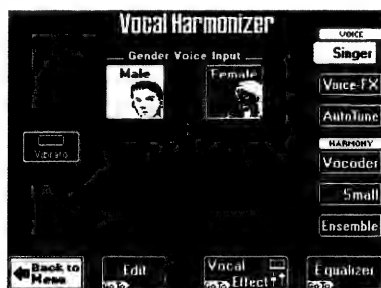
Just in case you are a little bit disappointed by the Vocal Harmonizer function, here are some tips (and a bonus):

● Use it with song backing

The Harmonizer sounds most convincing when used during song playback. Please bear in mind that transforming your voice in realtime requires quite a few calculations and that the human voice is one of the most difficult "signal sources" to recreate with varying pitches. The Vocal Harmonizer was fine-tuned to blend in with Standard MIDI File playback, and that's when it sounds most "real". Try it out, it works!

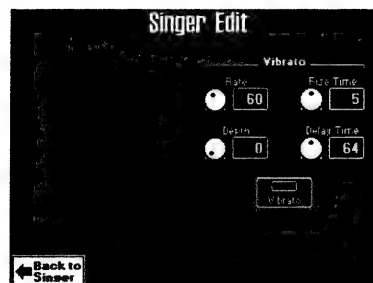
● Check the following (Gender Voice Input)

- (1) Press and hold the **[SINGER]** button.
The display changes to:



- (2) Press the **[Male]** field if you're a man, or the **[Female]** field if you're a woman.
This is an important clue for the Vocal Harmonizer. After selecting the correct setting, you may find that the harmonies sound better.
And just in case, you wanted to sound like a somewhat worn-out opera singer...
- (3) Press the **[Vibrato]** field (indicator icon must "light").
Sing a few notes and note the vibrato. If the effect is not strong enough...

- (4) Press the **[Edit]** field.



- (5) Use the **[PREV]** and **[NEXT]** buttons to select the parameter you wish to edit, and set the desired value with the **[VALUE]** dial.
Parameter fields can also be selected by pressing them.

The **[Vibrato]** indicator icon must be blue for the effect to be noticeable.

Here's what the parameters mean:

Rate: Sets the speed of the vibrato effect.

Depth: Allows you to set the vibrato intensity. Vibrato is an effect that changes ("modulates") the pitch. The higher the Depth value, the more outspoken these periodic pitch changes will be.

Rise Time: Allows you to set a swell for the vibrato effect. This parameter specifies how long it takes before the Depth value is reached – once the Delay Time is up.

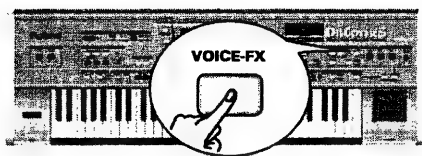
Delay Time: Allows you to set a delay between the moment you start singing and the moment the vibrato effect kicks in.

- (6) Press **[EXIT]** to leave this page (or **[Back to Singer]** to try out the other "Gender" settings).

Voice-FX

Ever wondered what your voice would sound like if you were a woman (for men), man (for women), robot or something else...? You're about to find out:

- (1) Press the **VOICE-FX** button.



- (2) Sing into the microphone and listen to yourself. (You may have to switch off the **SMALL** or **ENSEMBLE** button if it lights to hear how this function works.)

- (3) Press and hold the **VOICE-FX** button. The display now looks as follows:

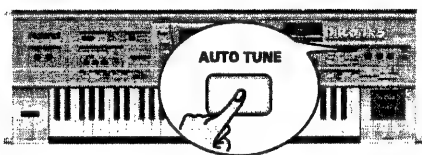


- (4) Press one of the twelve preset fields in the center of the display to try out other possibilities.

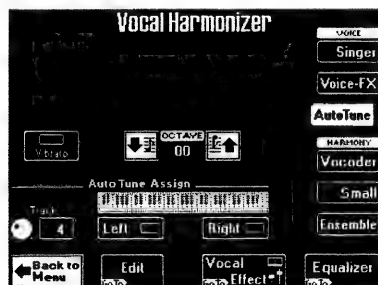
Auto Tune

Here's another interesting effect that can either be used as gimmick or to ensure that even the flattest of renditions suddenly sounds in tune. Of course, the voice will sound somewhat "artificial", because the emphasis is on tuning here. However, even if you just speak the words of a song, it will be sung just the same.

- (1) Press the **AUTO TUNE** button.



- (2) Start song playback and say something into the microphone (don't sing). Sounds like a very popular effect, doesn't it?
- (3) Press and hold the **AUTO TUNE** button. The display changes to:



Let us begin with the most important parameter: the notes that will be used by the Auto Tune. That is what you specify via the Auto Tune Assign fields.

- (4) Set the **Track** value to select a song part. The "4" setting usually corresponds to the melody part, and is thus the most likely candidate, but feel free to select "1"~"3" or "5"~"16" to use another part as melody.

If you want to play the melody yourself, press the **Left** or **Right** field (or both) and play the desired notes, while you speak (or sing) into the microphone.

Note: Selecting "Left" and/or "Right" will set the Track parameter to "Off".

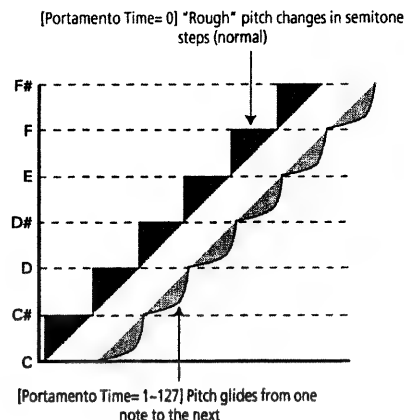
Use the **Octave** parameter to shift the pitch of the Auto Tune notes up to 2 octaves up or down.

- (5) Press the **Vibrato** field to add some "wobble" to the Auto Tune sound. This vibrato effect is not linked to the Voice-FX vibrato, and can thus be set separately (see below).
- (6) For more refined control over the Auto Tune voice, press the **Edit** field:



Though they are not linked to their namesakes on the Voice-FX Edit page, most parameters on this page will look familiar. Therefore, please see above for the explanations of **Gender** and **Vibrato Rate**, **Depth**, **Rise Time**, and **Delay Time**.

- (7) Use the **PREV** and **NEXT** buttons to select the parameter you wish to edit, and set the desired value with the **VALUE** dial. Parameter fields can also be selected by pressing them.
- (8) Press the **Portamento** field to switch on this effect.
"Portamento" means that the pitch doesn't change in clearly defined steps: it produces glides from one note to the next.



Use the **Portamento Time** parameter to specify the speed at which those glides are carried out (0~127). The higher the value, the slower the transitions.

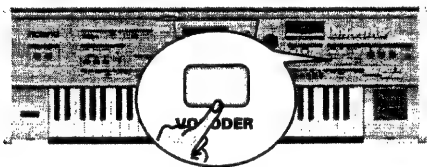
Note: To keep your settings, you must write them to a User Program.

- (9) Press **EXIT** to leave this page (or **Back to A-Tune** to modify other Auto Tune settings).

Using the Vocoder

A Vocoder is an effect that combines spoken words with sounds, thus creating the impression that the instrument that produces the sounds can talk. As this relies on complex filtering effects, the character of the sound used as "carrier" can change dramatically.

- (1) Press the **VOCODER** button (it must light).



This switches off the **SMALL** or **ENSEMBLE** button if it was on, because the Vocoder cannot be used simultaneously with the Harmonizer function proper.

- (2) Stop song playback if it is running.
The Vocoder can also use a song part, but for this demonstration, we'll use the keyboard, because doing so will make you understand how the Vocoder works.
- (3) Play a chord on the keyboard, hold those notes, and talk into the microphone.
For obvious reasons, the Vocoder only works if you (a) talk or sing, and (b) if there is a "musical sound" that can be processed.

Play various chords and listen to how that affects the signal generated by the Vocoder.

Note: The Vocoder can produce four voices at once. Playing more than four notes simultaneously is thus unnecessary.

Note: The Vocoder can be used alongside **SINGER**, **VOICE-FX** or **AUTO TUNE**.

Again, there are several parameters for customizing the Vocoder's behavior:

- (4) Press and hold the **VOCODER** button.
The display changes to:



Gender: Allows you to change the timbre of the effect so as to create a masculine, feminine, or mixed character. The Gender choice determines which 8 preset settings are available. There are thus 24 Vocoder presets (8 for "Male", 8 for "Female", and 8 for "Mix").

The 8 fields in the middle (e.g. Opera, My Voice, etc.) specify the voice character. These presets are based on the parameters you can change on the Edit Part 1~4 page (which you don't need if you are happy with one of the presets).

- (5) Set the desired "Track" value with the VALUE dial.

The **Vocoder Assign** section's current (default) setting is "Auto". This means that song files indicated as "With MIDI Harmony for Your Vocal Harmony Processor" (with harmony note information on track 5) automatically switch on the Vocoder. If you like, you can still add additional chord information by playing on the keyboard. In Small or Ensemble mode, the pitch of your singing also influences the voicing of the harmony notes. This is not the case when you use the Vocoder.

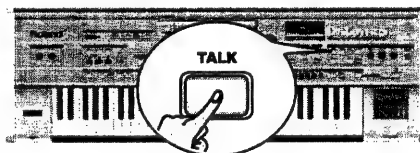
Talk

The Talk function is meant for announcements between songs: it switches off any other Vocal Harmonizer effect (Voice-FX, Auto Tune, Singer, Vocoder, Small/Ensemble) that may be on. Furthermore, it mutes the Vocal Harmonizer's effects processors (Reverb, Chorus, Delay, etc.) – or adds a pinch of Reverb and/or Delay if you like.

That way, your voice has its normal sound when you wish or need to address your audience. And here too, the professionalism of your DisCover 5 shows, because the Talk function can be set in such a way that the music (song) is turned softer, but not muted altogether.

HINT !! You could combine this with the Chain function (page 76) and insert a short "announcement tune" between the actual songs, so that your announcements are easily recognizable. Of course, you could also play the tune yourself.

- (1) Press the TALK button and speak into the microphone.



All Vocal Harmonizer transformations are now muted. This includes the VOCODER, SMALL, and ENSEMBLE buttons.

- (2) After your announcement, press the TALK button again (to return to the previous "singer" settings) and sing to the next song.

Here's what you need to do to change the level of the background music, and the amount of Reverb and/or Delay that is added to your speaking voice.

Note: See page 54 for an in-depth discussion of the effects settings.

If you stop song playback and then play a chord on the keyboard, the note information thus generated is used.

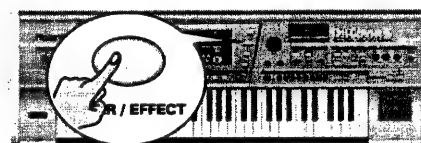
Set the **Track** value to select a song part ("1"~"16"). As the melody is usually monophonic (1 note at a time), "4" may not be the best possible setting. Try to select a track with several notes. If you want to play the melody yourself, press the Left or Right field (or both) and play the desired notes, while you speak (or sing) into the microphone.

Note: See page 64 for the Edit parameters.

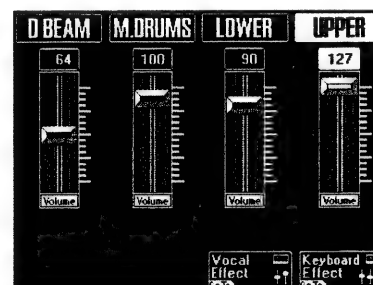
Note: To keep your settings, you must write them to a User Program.

- (6) Press EXIT or Back to Vocoder to leave this page.

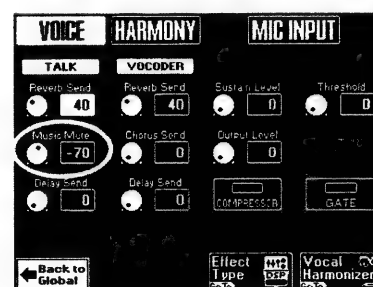
- (3) Press the MIXER/EFFECT button.



The display changes to:



- (4) Press the Vocal Effect field.



Note: Press the Vocal HARMONIZER field to jump to a page where you can select different presets, etc. (see p. 22).

- (5) Use the **PREV** and **NEXT** buttons to select the **Music Mute** field and set the desired value with the **VALUE** dial.
The smaller the value, the softer the song's and Keyboard parts' volume will be. Select "0" if you do not want the music to be any softer than it already is.

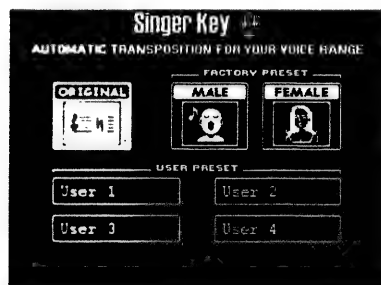
Automatic transposition (Singer Key)

Here's yet another revolutionary function of your DisCover 5: based on information you select or input, it can change the key of all songs you play back in realtime, thus allowing you (or a guest singer) to sing all songs in a comfortable range. This function is called "Singer Key".

- (1) For the sake of clarity, first select a song (see p. 16) and press **▶/■** to start playback. Pay attention to the song's key.
- (2) Press **▶/■** again to stop playback, and **◀** to return to the beginning.
- (3) Press the **SINGER KEY** button to switch on this function.



The display changes to:



This page contains three presets: **ORIGINAL** means that the songs are not transposed, while **MALE** and **FEMALE** adapt the song's key to the "typical" range of a male or female voice.

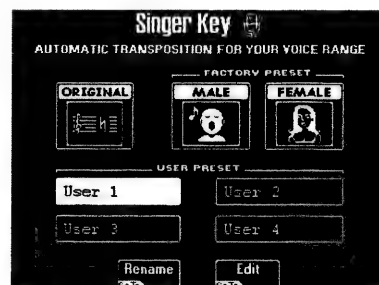
- (4) Press the **MALE** or **FEMALE** field (depending on whether you're a man or a woman).
- (5) Press the **▶/■** button to start playback.
The song may now be playing in a different key. If it is not, the melody falls within the "typical" range you have just selected.

Note: This automatic transposition only works if track/MIDI channel "4" of the songs you play back contains the melody part.

- (6) Press **▶/■** again to stop playback, and **◀** to return to the beginning.
That may still have been too high or too low for comfort... So here comes the best part:

The **Reverb Send** and **Delay Send** fields allow you to add some Reverb and/or Delay to your voice. While some Reverb (values between "10" and "40", for example) could be useful, Delay should probably only be used as "effect", because it tends to blur your announcements.

- (7) Press one of the **USER PRESET** fields, and then **Edit**.



The display changes to:



Note: The **Edit** field only appears after pressing one of the **USER PRESET** fields. The latter are four memories where you can store your own range settings.

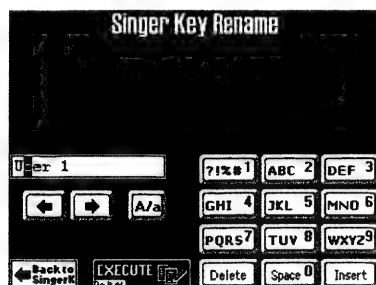
- (8) Press the **Highest Note** field (if it is not already selected).
- (9) Sing the highest note you can muster effortlessly (you can sing it several times).
If you connected a microphone, a **CAPTURE** field appears. Press this field to confirm the note you want the DisCover 5 to recognize. (This field does not appear if you enter the pitch via the keyboard.)
The DisCover 5 recognizes the pitch and displays the name of the corresponding note. (If you have no microphone handy, you can also play this note on the keyboard.)
- (10) Press the **Lowest Note** field and repeat step (9), taking care to sing your lowest possible note.
- (11) Press **Customize** to store these settings if you wish to use them at a later stage.

The display briefly confirms that your settings have been stored:



(12) Press the **[Back to SingerK]** field to return to the page of the same name.

(13) Press the **[Rename]** field to assign a name to your settings.



► Entering names

(14) Use the **[←]** and **[→]** fields to select the position for which you wish to enter a new character.

(15) Use the alphanumeric keypad in the right corner to enter the desired characters. This keypad works exactly like the keypad of a cellphone: you may have to press an alphanumeric field several times to select the desired character or number.

- The **[A/a]** field allows you to switch between uppercase and lowercase characters.
- The **[Delete]** field allows you to delete the inverted character.
- Press **[Space]** to insert a blank (or the number "0").
- If you forgot to insert a character, use **[←]** or **[→]** to select the position where the missing character should be inserted. Then press **[Insert]**, followed by the character you wish to insert.

(16) If you're happy with the name for your Singer Key settings, press **[EXECUTE]**. The display briefly confirms that your name has been stored:



(17) Press the **[▶/■]** button to start playback. The song may now be playing in a different key. If it is not, the melody falls within the range you set.

Note: At first, the Singer Key function only works with the songs on the supplied SmartMedia card. Other songs you yourself copied to the SmartMedia card need to be selected, played back for a few measures, and then saved to card again (even without any changes). Only then will the Highest and Lowest notes be recognized the way they should. See page 107 for how to save songs.

Displaying Lyrics and chord information

Your DisCover 5 also allows you to view the lyrics of the songs (if available) in the display.

The Lyrics function was provided to allow you to read the words of the songs being played back in a karaoke fashion: the words to sing are highlighted at the right time. Note that this function is only available for Standard MIDI Files that contain Lyrics data. Ask your dealer for details.

Apart from the Lyrics, the DisCover 5 also displays the chords, which may come in handy for a guitarist or bassist with whom you are playing.

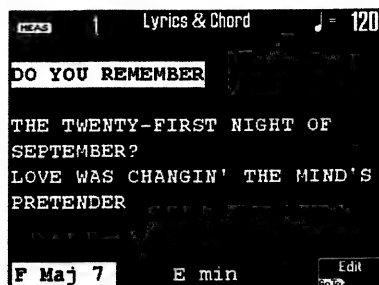
The chord information is usually not contained in a song as such, but that's no problem: the DisCover 5 can "calculate" it in realtime and even display it a little ahead of the "changes".

- (1) Select a song (page 16).
- (2) Press the **[LYRICS&CHORD]** button.



- (3) Start song playback.

The display changes to:



The chord information appears at the bottom of the screen.

Note: The chord information is calculated in real-time and may not always be accurate. Also, with chords where the third has been omitted, no information will be displayed (because it is impossible to tell whether those are minor or major chords).

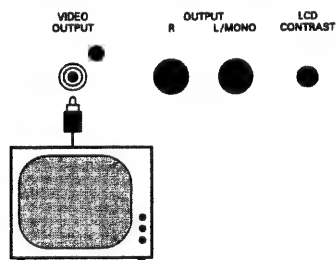
Note: You can also add Lyrics data to songs that do not yet contain them. See page 96 for details.

► Using an external monitor

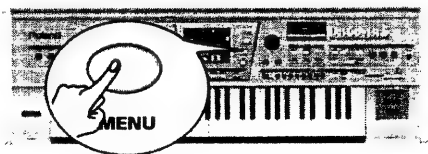
Your DisCover 5 also provides a VIDEO OUTPUT socket you can connect to the video input of a TV screen or monitor.

That monitor (or screen) always displays the Lyrics (if available) and chords, even if you –or the DisCover 5– select(s) other display pages.

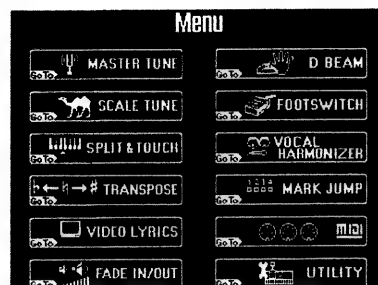
- (1) Connect the VIDEO OUTPUT socket to the video input of the TV set or monitor.



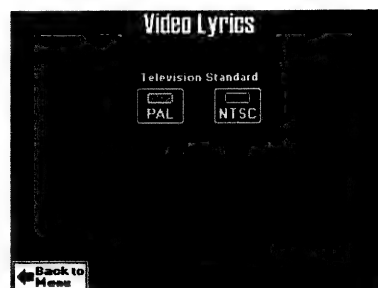
- (2) Switch on your TV set or monitor and start playback of a song with Lyrics.
If the lyrics and chords do not appear correctly on the external screen, proceed as follows:
- (3) Press the **MENU** button.



The display changes to:



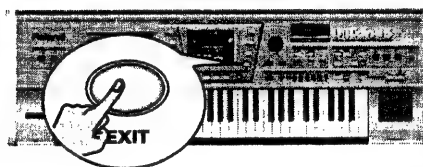
- (4) Press the **VIDEO LYRICS** field.



- (5) Press the **PAL** or **NTSC** field to select the desired setting (or the one that works).

Note: If you work with a TV set, do not forget to select the correct channel ("AV", or something to that effect, see the manual that came with your set).

- (6) Press the **EXIT** button to return to the main page.



Using the Keyboard parts

Your DisCover 5 provides three "parts" that allow you to play different sounds on the keyboard. That is why these parts are called "Keyboard parts". They are available during song playback and while playback is stopped.

Playing with the Upper and/or Lower part

At power-on, the Upper part is automatically switched on and assigned to the entire keyboard, so let us start with that part.

- (1) Switch off the **[SPLIT]** button if it lights.
- (2) Press the **[UPPER]** button if it does not light.



- (3) Play a few notes on the keyboard.
The Upper part's sound ("Tone") is assigned to all keys. You can therefore play this part with your left and right hands.
You could also press the **[MULTI-FX]** button to the right of **[UPPER]** to add an appropriate effect to the Upper part. See page 52 for details.

Note: The Multi-FX is only available for the Upper part.

- (4) Use the **[VOLUME]** knob to set the DisCover 5's output volume.
- (5) If you are playing to a song, use the **[BALANCE]** knob to set the balance between the song and your live playing.

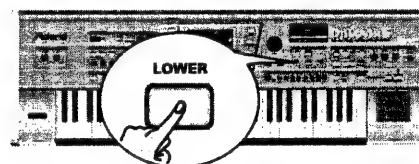


Turn it towards "KEYBOARD" to make your playing louder. Turn it towards "SONG" if your playing is too loud with respect to the song.

Note: See page 49 for how to set the balance between the Keyboard parts.

The Lower part can be used in the following ways:

- as a quick way of alternating between two different Tones, whereby one is assigned to the Upper part and the other to the Lower part.
 - as additional sound for the Upper part, in which case Upper and Lower sound together (this is called a "Layer").
 - as separate sound for the left half of the keyboard (while the Upper part is assigned to the right half). This is called "Split" (see below).
- (6) Press the **[UPPER]** button to switch off the Upper part.
 - (7) Press the **[LOWER]** button to switch on the Lower part.

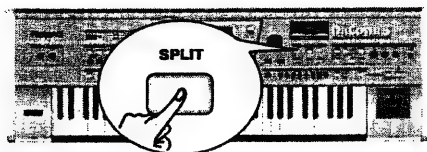


- (8) Play a few notes on the keyboard.
The Lower part's Tone is assigned to all keys. You can therefore play this part with your left and right hands.
- (9) To create a layer (Upper + Lower), press the **[UPPER]** button (so that it lights).
This also works the other way round: you can add the Lower part (button originally dark, but then switched on) to the Upper part (button lights).

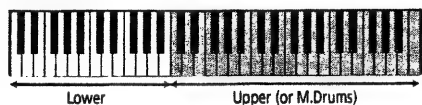
Splitting the keyboard

Here's what you need to do to play separate sounds with your left and right hands:

- (1) Press the **SPLIT** button.



The keyboard is now split into a left (Lower part) and a right half (Upper part). The Split point is located at the C4 (white key below the **INSTRUMENT** button).



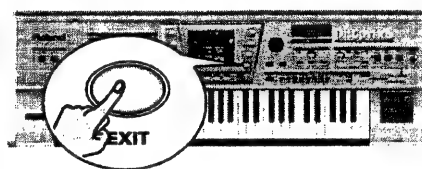
You could also press the **M.DRUMS** button to assign the M.Drums part to the right half. This would allow you to play chords with your left hand (Lower part) and to drum to it with your right. See below for details about the M.Drums part.

To use a different split point:

- (2) Press and hold the **SPLIT** button.
The display changes to:



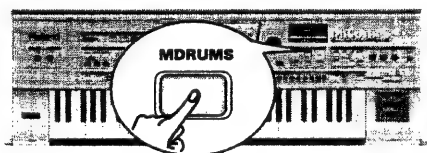
- (3) Use the **←** **→** fields below the displayed keyboard to select the new split point.
You can also hold down the **SPLIT** button while pressing the desired key on the keyboard.
Note: This setting can be written to a User Program and recalled at a later stage (page 80).
- (4) Press the **EXIT** button to return to the main page.



Drumming on the keyboard

The DisCover 5 also provides a Keyboard part that allows you to play drums and percussion. This is the "M.Drums" part.

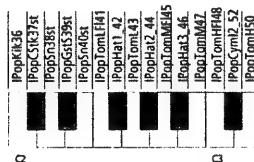
- (1) Switch off the **SPLIT** button if it lights.
- (2) Press the **MDRUMS** button.



This will switch off the **UPPER** button (and the corresponding part), because Upper and M.Drums cannot be used simultaneously.

- (3) Play a few notes on the keyboard.

Every key is assigned to a different drum/percussion sound. Press the leftmost white key (C2) to sound a bass drum ("kick"), and the white key to its right (D2) to play a snare sound. Then, try out the other keys.



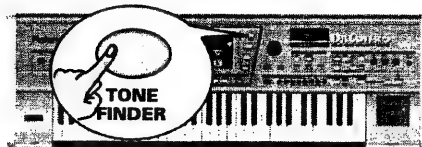
If necessary, you can also press the **SPLIT** button. In that case, the M.Drums part will be assigned to the right half of the keyboard, while you can add chords with the Lower part (which is assigned to the left half).

Choosing other Tones (or Drum Sets)

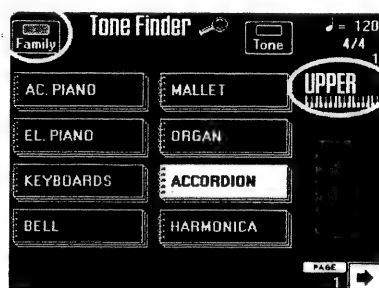
The DisCover 5 contains 1,422 Tones (or sounds) that can be assigned to the Upper and Lower parts. There are three methods for assigning Tones to the Upper part (two for the Lower part).

► TONE FINDER function

- (1) If one of the buttons in the SONG MAKEUP TOOLS section below the display lights, press **[EXIT]** to switch it off.
- (2) Press the **[TONE FINDER]** button.

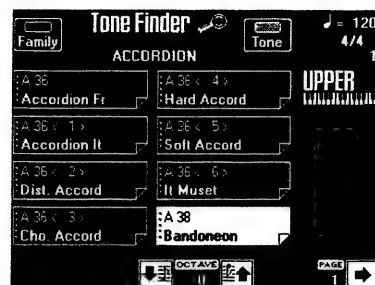


The display changes to:

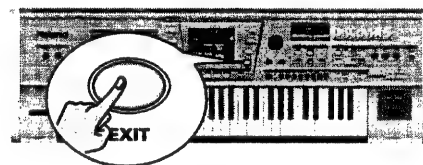


- (3) Take a look at the part name below the measure indication (right side). If it does not correspond to the part you wish to assign another Tone to (which can only happen in Split mode), press and hold the **[LOWER]** button until the "UPPER" (or "M.DRUMS") message changes to "LOWER". The Lower part is indeed the only additional part that can be active alongside the Upper (or M.Drums) part.
- (4) If the **[Family]** indicator icon is not highlighted, press it. The eight big fields contain the names of the first eight Tone families.
- (5) Press the field that corresponds to the kind of Tone you need if it is already displayed (in the above example, **[ACCORDION]** has been selected). Use the **[◀]** or **[▶]** field (lower right) to select another group of up to eight Tone names. (There are 34 families in all that are divided over five display pages.)

The display now lists eight Tones of the selected family.



- (6) Press the field of the Tone you are interested in. If you don't like it, press another field.
- (7) If none of the Tones available on this page fit the bill, use **[◀]** or **[▶]** to jump to another page. The number of Tone pages depends on the family you select. If the **[▶]** field is not displayed in the bottom right corner, you have reached the last Tone page of the selected family.
- (8) Use the two arrow fields to change the **OCTAVE** (transposition) of the selected Tone. This is only necessary if you feel the Tone is right for what you want to play, but too high or too low.
- (9) Press the **[EXIT]** button to return to the main page.



► Using the numeric buttons and/or the display

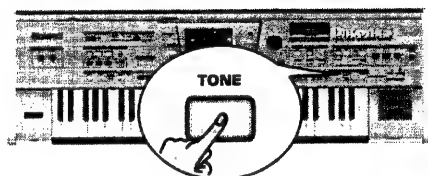
The following is a more traditional approach, which may nevertheless be practical for experienced users. The display tracks your actions on the TONE/USER PROGRAM pad, so that you could start by pressing one of those buttons, and finish off via the display. (The following refers to "Tone/User Program Select Mode [2], see p. 36.)

- (1) On the main page, press the row of the part you wish to assign a different Tone to.



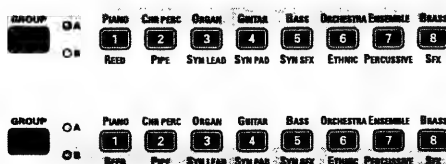
If the **[SPLIT]** button does not light, this step is unnecessary, because Tone selection automatically applies to the active Keyboard part (whose **KEYBOARD PART** button lights).

- (2) Press the **[TONE]** button if it doesn't light.



The TONE/USER PROGRAM [1]~[8] buttons allow you to select sounds and registrations ("User Programs"). You therefore need to specify what you want these buttons to do.

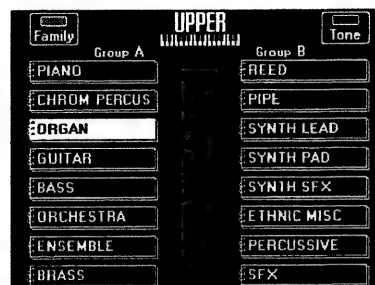
- (3) Take a look at the numeric buttons in the TONE/USER PROGRAM section.
If the name of the Tone family (GM/GS family mapping) is printed above a number button, that family belongs to Group "A". Names printed below the number buttons belong to group "B".



There are two Groups with 8 banks each.

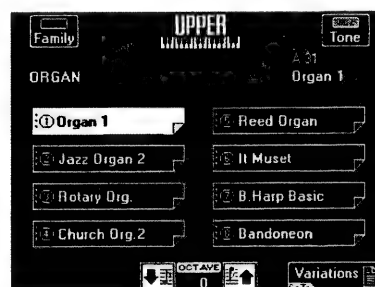
- (4) Press the **[GROUP]** button once or twice (so that the "A" or "B" indicator lights). You can also press the **[A]** or **[B]** field in the display.

The Tone changes (to correspond to the family and number of the newly selected group). The display changes to:



Note: That Tone may not be what you need at all. See "Choosing the Tone/Drum Set switching system" (p. 35) for how to change that.

- (5) Press a TONE/USER PROGRAM [1]~[8] button to select a family within this Group. You can also press a field in the display (and thus switch to the "other" Group if necessary). The display now responds with a list of Tones available in that family:

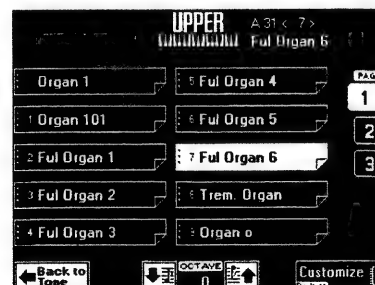


- (6) Press the field of the Tone you are interested in. If you don't like it, press another field.
Note: If you picked the wrong family, you can press the **[Family]** field to return to the previous display page.

●Variations

If you think the Tone you selected is close, but not entirely what you need, you can refine your selection as follows:

- (7) On the above display page, press the **[Variations]** field.

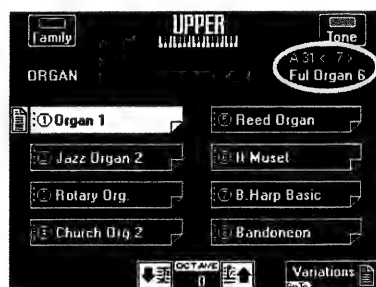


- (8) Press a field on this page to select a Tone Variation.

This Variation system is used to provide access to all Tones you can select. After all, 2 Groups × 8 families × 8 memories add up to 128 possibilities, which is only a fraction of the Tones you can select.

Hence the Variation system, which adds a "sub-category" to the Tone memories. The number of Variations varies from Tone to Tone: it can be anything between 1 and 50. See the included "Tone & Drum Set Lists".

- (9) Press the field of the desired Variation.
- (10) If you are still not happy with the Tone, use the [1]~[5] fields (right side) to select the corresponding page and its 10 Variations (if available).
If you now return to the Tone memory page, it may look as follows:



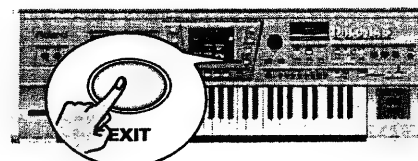
The [V] symbol means that the selected Variation is being used (see also its "address" in the upper right corner), but that your choice will not be remembered. So next time you select that Tone memory ("A31"), the DisCover 5 will once again use the "Organ 1" Tone.

To ensure that the "Full Organ 6" Tone is assigned to the "number position" (1 in this case) –thus replacing the "Organ 1" Tone–, you need to proceed as follows:

- (11) Press the [Variations] field.
If you're still on the Variation page (see step (7) above), this step is unnecessary.
- (12) Press the [Customize] field to store your Variation assignment.
The display briefly responds with the following message and then returns to the Tone memory page.



- (13) Press the [EXIT] button to return to the main page.



Next time you select the ORGAN family page (because you want to choose an organ Tone), the display will look as follows:



(The first memory no longer recalls the "Organ 1" Tone, but the "Full Organ 6" variation.)

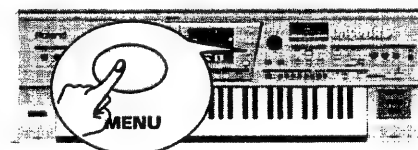
● Choosing the Tone/Drum Set switching system

Your DisCover 5 uses a new system for Tone and Drum Set selection (at least as far as Roland aficionados are concerned): when you press the [GROUP] button or when you select a GM/GS family (formerly called a "bank"), the DisCover 5 immediately recalls the Tone of the same memory (and family) of the new group.

Example: if you are currently working with Tone A41, selecting Group B will activate Tone B41, which may not be at all what you need.

If you prefer the DisCover 5 to go on using the previous Tone (or Drum Set) until you have selected the Tone/Drum Set memory, here is what you need to do:

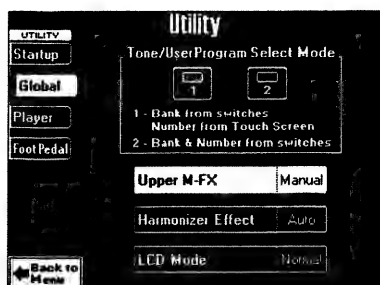
- (1) Press the [MENU] button.



The display changes to:



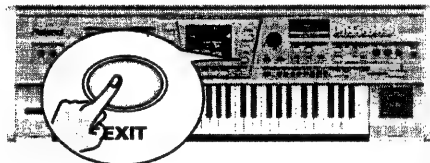
- (2) Press the **UTILITY** field. If the **Global** field in the left column is not displayed in white, press it.



- (3) Press the **1** or **2** field:
1 means that the TONE/USER PROGRAM buttons are used for selecting the GROUP (A or B) and the family. The DisCover 5 immediately switches memories. To select a different memory ("Number") within the active bank, you need to work via the display.

2 means that pressing a TONE/USER PROGRAM button once selects the GM/GS family but does not yet change Tones/User Programs. Press the same (or a different) numeric button **1~8** to specify the memory and to recall that Tone. Furthermore, no sound switch can be triggered simply by selecting another Group.

- (4) Press the **EXIT** button to return to the main page.



► Working with Tone Favorites

The DisCover 5 allows you to memorize the 16 Tones you need most often. Let us have a look at how to assign your favorite Tones to those memories and how to select them.

Note: There are 16 memories in all (8 for Group A, and 8 for Group B). These assignments are not written to a User Program and only apply to the Upper Tone.

- (1) Select the Tone you want to define as favorite (see above).
- (2) Press and hold the **FAVOURITE TONE** button.



The display changes to:



- (3) To select a Tone from this list, first press the **FAVOURITE TONE** button and then briefly press a field.
 You could also use the **GROUP** and **1~8** buttons.

Note: Press and hold the TONE/USER PROGRAM **1~8** button you wish to assign the selected Tone to until the following confirmation appears:



- (4) Press **EXIT** to leave this page.
- (5) Press the **FAVOURITE TONE** button again (or the **TONE** or **USER PROGRAM** button) to switch off this function.

► Selecting Drum Sets

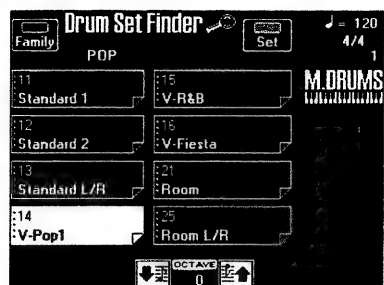
As stated earlier, the M.Drums part doesn't use Tones but "Drum Sets". Drum Sets are collections of up to 128 different drum and percussion sounds, each assigned to a different key. The DisCover 5 contains 44 Drum Sets. Drum Set selection is similar to Tone selection, and you can use both the Tone Finder routine (which is then called Drum Set Finder) and the TONE/USER PROGRAM buttons.

Here's what the **Drum Set Finder** page looks like:



The **Family** field should look familiar: it allows you to specify what kind of Drum Set you need. (There are no "Groups" on this page.)

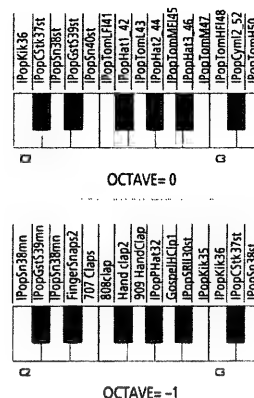
After specifying the family by pressing one of the eight big fields, press the **[Set]** field. The display changes to:



Use the arrow fields to change the **OCTAVE** of the selected Drum Set.

This is only necessary if you do not have access to the desired drum/percussion sounds. Some Drum Sets indeed provide up to 128 such sounds, while the keyboard only has 61 keys.

OCTAVE therefore doesn't change the pitch of the sounds: it assigns other sounds to the keys. Here's an example:

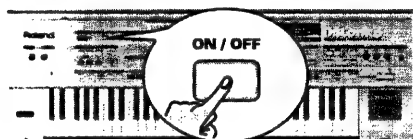


Drum Set selection via the **TONE/USER PROGRAM** buttons works exactly like Tone selection. But also in that case, there is no need to select the group: there are no Drum Set groups.

Using the D Beam Controller

The D Beam Controller allows you to control various aspects of your performance, or to add something to the music, by moving your hand, head, etc., in the air. You only need to make sure that you do so over the two "eyes" and within a 40cm ($\pm 16"$) range. Your movements are translated into musical expression.

- (1) Press the **D BEAM CONTROLLER ON/OFF** button (it must light).

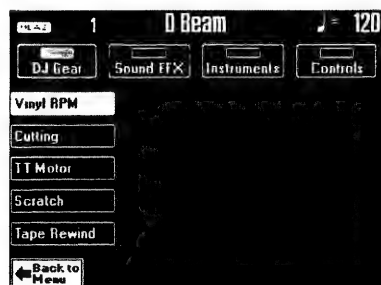


Let's first try out the DJ GEAR functions.

- (2) Press the **[ASSIGN]** button (next to the **ON/OFF** button) until the DJ GEAR indicator lights.

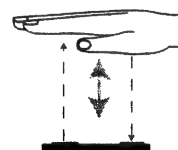


The display changes to:



- (3) Start playback of a song (page 16).

- (4) Move your hand towards and away from the D Beam's "eyes".



What you hear now is the "VinylRPM" effect. Now let's do some scratching...

- (5) Press the **[SCRATCH]** field.
- (6) Again move your hand towards and away from the D Beam.

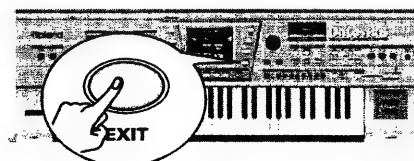
Now you should hear a scratch sound.

Try out some other effects by pressing the **[Sound FX]** and **[Instruments]** fields and selecting one of the available options.

(You can also press the **[ASSIGN]** button to select D Beam modes.)

Note: See p. 41 for full details about the D Beam Controller.

- (7) Press the **[EXIT]** button to return to the main page.



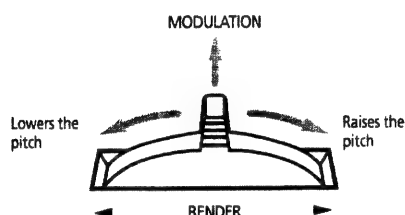
4. Using the performance functions

Let us now have a look at the DisCover 5's performance functions. Also called controllers, they allow you to add expression to your playing, which is a very important aspect for simulating glissando's, bendings, and other changes that will make your melodies even more convincing.

Pitch Bend and Modulation

The BENDER/MODULATION lever to the left of the DisCover 5's keyboard can be used to add two kinds of effects to the Keyboard part notes (Upper, Lower, M.Drums). You can even use these effects simultaneously if you like.

- (1) Press the lever towards the rear of the DisCover 5 to add a vibrato effect ("wobble") to the notes you are playing.
- (2) Turn the lever to the left to temporarily lower the pitch of the notes you are playing. Turn it to the right to raise the pitch of your notes. The Pitch Bend interval ("range") is preset to 2 semi-tones.
- (3) Release the lever if you no longer need the effect.



The Modulation axis can also be used for switching between the slow and fast Rotary speeds (if the "Rotary" effect is assigned to the Multi-FX).

Transposition

If you are used to playing a song in a particular key, the Transpose function will help you go on playing in that key while sounding in another one. That way, you can accompany a singer or instrument without changing your fingering.

- (1) Press the TRANSPOSE button to transpose the DisCover 5 down by up to 6 semi-tones.



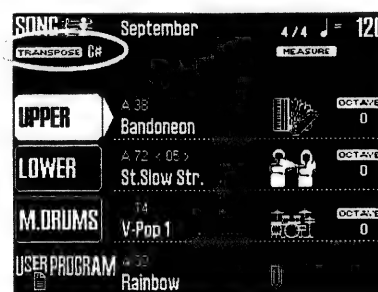
- (2) Press the TRANSPOSE button to transpose the DisCover 5 up by up to 5 semi-tones. Transposition never applies to M.Drums part (or the drum part of a song).

To transpose from the key of C to E, press four times. To transpose from C to G, press five times.

Be sure to return to the original setting (no transposition) by simultaneously pressing and .

As long as the interval is different from "0", one of these buttons lights to signal that the Transpose function is active.

The transposition interval is indicated on the main page:



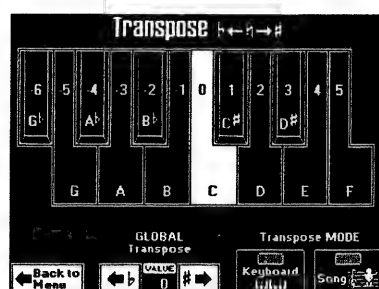
The "C#" actually refers to a semitone increase of the pitch, so that you hear a "C sharp" every time you play a "C". It also means that, rather than the "A" you press, you will hear "A sharp" (or "B flat"). The above setting corresponds to pressing once.

Note: Any interval you set here automatically resets (and thus overrides) the Singer Key transposition (see p. 28). In fact, the latter is reset to ORIGINAL, after which the new transposition value is used.

Setting the transposition interval via the display

If you prefer to set the transposition interval via the touch screen with a nice graphic, here is how to.

- (1) Press and hold the TRANSPOSE or button.



- (2) In the display, press the key that corresponds to the note you would like to hear every time you play a C.

Note: Selecting "0" means that the transposition is off. Your setting can, however, be written to a User Program (page 80).

- (3) Press the **Keyboard** and/or **Song** field to switch it on.

These fields allow you to specify which parts should be affected by the Transpose setting:

Keyboard: The Upper and/or Lower parts will be transposed.

Note: The M.Drums part is never transposed.

Song: Only the song parts will be transposed.

Though it is perfectly possible to switch on both options, at least one of them must be on. "Keyboard" could be useful for transposing only the Keyboard parts so that you can play to a song in "your" key but sound in the song's key.

Note: If you also want note messages received via MIDI to be transposed, you must set "Transpose" (p. 103) to "ON".

- (4) If necessary, set the GLOBAL TRANSPOSE value using the fields. This value is in fact a "master transpose control" for all sections of the DisCover 5. Its value is added to the current transposition interval (and the Singer Key as well as User Program transposition) until you reset it to "0", or until you switch off your DisCover 5.

- (5) Press the **EXIT** button to return to the main page.



Keyboard Touch (velocity sensitivity)

Of course, the DisCover 5's keyboard is also velocity sensitive. This allows you to control the timbre and volume of the Keyboard parts by varying the force with which you strike the keys.

- (1) Press the **MENU** button.



The display changes to:



- (2) Press the **SPLIT & TOUCH** field.



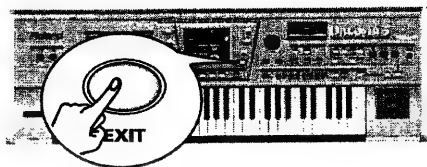
- (3) Press a field in the lower part to set the desired velocity sensitivity:
Low: Select this setting if you are used to playing on an electronic organ or if you do not want velocity changes to bring about major volume changes.

Mid: Medium velocity sensitivity. The keyboard responds to velocity changes, but the maximum volume can be obtained more easily than with "High". (This is the default setting.)

High: Select this setting for maximum expressiveness. Even small variations of the force with which you strike a key produce audible

changes. The trade-off is, however, that you have to strike the keys forcefully to achieve the maximum volume.

- (4) Press the **[EXIT]** button to return to the main page.



About the DisCover 5's Tones

All Tones of your DisCover 5 are fantastic, of course, but some of them are truly amazing. In the supplied "Tone & Drum Set Lists" document (and on the display pages), look out for Tones that start with a "V" (for "virtual").

Select them and try playing at different velocities (strengths) to find out the rich nuances that can be obtained. There is a trumpet Tone, for example ("V Trumpet", A81, Variation 13) that allows you to alternate between a "closed" and "open" muted trumpet simply by hitting the keys softer or harder. Various guitar Tones provide hammering-on/bending sounds when you strike the keys as hard as you can.

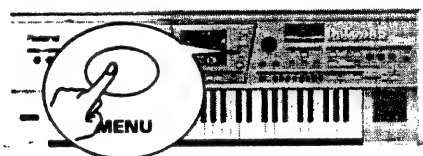
On top of that, transposing the keyboard to the lowest octave (using the OCTAVE parameter on various pages) sometimes provides access to some typical noises (scraping over the strings, hitting the body of an acoustic guitar, etc.).

Such realism could be achieved in SPLIT mode: assign the same Tone to the Upper and Lower parts, but select the lowest octave (-4) for the Lower part. That way, you can play the "noises" with your left hand.

Master Tune

This is not really a performance function, but it allows you to tune your DisCover 5 to acoustic instruments that cannot be tuned.

- (1) Press the **[MENU]** button.



The display changes to:



- (2) Press the **[MASTER TUNE]** field.



- (3) Use the **[VALUE]** dial to set the desired tuning. The default value is "440.0". You can return to this value by pressing the **[440.0Hz]** field.
- (4) Press the **[EXIT]** button to return to the main page.

D Beam functions

We still owe you an explanation or two about how to assign the desired function to the D Beam controller and what they mean. Let's have a look at how to do that.

The D Beam Controller has two sensors that detect motion (such as your hand or body movements) in front of it. These "sensed" positions are translated into MIDI messages that can be assigned to a variety of parameters.

- (1) Press the D BEAM CONTROLLER [ON/OFF] button (it must light).
- (2) Use the [ASSIGN] button to select the function the D Beam Controller should perform. There are 4 groups (DJ GEAR, SOUND EFX, INSTRUMENTS, and CONTROLS). This means that you may have to press the [ASSIGN] button several times in order to select the desired function.

To assign another function to the D Beam Controller:

- (3) Press the [ASSIGN] button.



- (4) Press the field that corresponds to the desired function (see below).
- (5) Use the [DJ Gear], [Sound EFX], [Instruments] and [Controls] fields to select the remaining groups and assign the desired function as well.

The assignments of all four groups (DJ GEAR, SOUND FX, INSTRUMENT, CONTROLS) will be written to a User Program (one per group), so that you can also alternate between these groups while playing – and still use your favorite settings.

► DJ Gear

Vinyl RPM: allows you to simulate the sound you hear when manually turning a vinyl record to locate (cue) the position where you wish to start playback.

Cutting: this is a very powerful filter effect that allows you to suppress the high frequencies in a rhythmic way (like a DJ does sometimes).

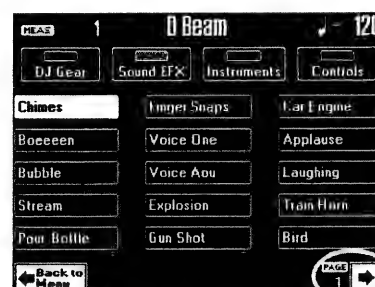
TT Motor: simulates the effect you hear when you suddenly stop a turntable: the playback speed decreases, while the pitch drops and the sound becomes muffled.

Scratch: the D Beam Controller can be used for adding scratch noises. You know what that is, don't you...?

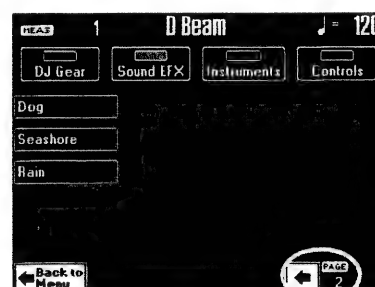
Tape Rewind: allows you add the sound you hear when you rewind a cassette tape without stopping playback (the music plays backwards and at high speed).

► Sound EFX

Here, you can select various "noises" to be added to your music simply by moving your hand over the D Beam. We will not try to describe them: just try them out!



If necessary, press the [PAGE] field to go to the second page.



(Press [PAGE] to return to the previous page.)

► Instruments

In this case, the D Beam will play musical notes. The pitch and chords of those patterns depend on the notes you play on the keyboard. Please try out the options on offer. It's the quickest way to find out how they sound and work.



► Controls

All options marked with a "o" apply to the Upper part only.



■ **Play/Stop:** Depending on the current condition of song playback (running or stopped), one move inside the D Beam's range stops (or starts) it. A second movement will start (or stop) it again.

■ **Tempo Up/Down:** Select one of these options if you want to increase (Up) or decrease (Down) the current song tempo. By moving your hand outside the D Beam's range, you return to the previous tempo value.

■ **Pitch Bender Up:** By moving your hand over the D Beam, you can generate a value between "64" (no Pitch Bend) and "127" (maximum upward bend). As soon as you move your hand outside the D Beam's reach (higher than $\pm 40\text{cm}$ above the "eyes" or further to the left or right), the value returns to "64" (no Pitch Bend).

■ **Pitch Bender Dw:** By moving your hand over the D Beam, you can generate a value between "64" (no Pitch Bend) and "0" (maximum downward bend). As soon as you move your hand outside the D Beam's reach, the value returns to "64" (no Pitch Bend).

■ **Modulation:** Select this function if you want the D Beam to duplicate the modulation function of the Bender/Modulation lever.

■ **Filter Up:** By moving your hand over the D Beam, you can vary the brightness of the Upper part. This allows you to create some nifty filter effects that are particularly useful for Dance/Techno music. When you move your hand outside the D Beam's range, the sound returns to its normal value.

■ **Filter Dw:** By moving your hand over the D Beam, you can vary the brightness of the Upper part. This is the opposite of the above: you can make the sounds mellow.

■ **Arpeggio Oct 1/2/3:** By moving your hand over the D Beam, you cause the Lower part to play arpeggios (broken chords) based on the notes extracted from the current song. Depending on the setting you select here, the notes will be arpeggiated over 1, 2, or 3 octaves.

Note: Do not forget to assign a suitable Tone to the Lower part.

■ **Chord Oct 1/2/3:** By holding your hand inside the D Beam's range, you cause the Lower part to sound the notes extracted from the current song. You could use this function to add syncopated brass or guitar "hits" to your melody. The velocity value used for playing these notes is "100". The number (1, 2, or 3) bears on the octave of this "added chord": 1 = $A_3 \sim G_4$, 2 = $A_4 \sim G_5$, and 3 = $A_5 \sim G_6$. Move your hand outside the D Beam's range to stop the Lower part from sounding the chord.

■ **Melody Mute:** By holding your hand inside the D Beam's range, you switch off the melody part (track 4) of the song you are playing back. A second movement will switch the melody on again. This function corresponds to one of the Minus-One options (page 19).



■ **Accomp Mute:** By holding your hand inside the D Beam's range, you mute all parts of the song you are playing back – except the melody, bass, and drums. A second movement will switch the accompaniment on again. This function corresponds to one of the Minus-One options (page 19).

■ **Drum&Bass Mute:** By holding your hand inside the D Beam's range, you mute the bass and drums of the song you are playing back. A second movement will switch these parts on again. This function corresponds to one of the Minus-One options (page 19).

■ **Rotary S/F:** Allows you to select the slow or fast speeds of the Rotary effect. This only works, if the Rotary effect is currently assigned to the Multi-FX.

Using optional footswitches

HOLD
FOOTSWITCH FOOT
SWITCH FOOT
PEDAL



Sustain/damper footswitch (Hold)

The HOLD FOOTSWITCH socket on the DisCover 5's rear panel allows you to connect an optional DP-2, DP-6, or BOSS FS-5U footswitch. The Hold function can be used for the Upper and Lower parts, on condition that the **[SPLIT]** button does not light.

In SPLIT mode, the Hold function only applies to the Upper part.

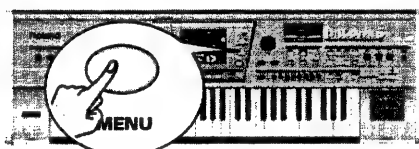
Note: Do not forget to connect an optional DP-2, DP-6, or BOSS FS-5U footswitch to the HOLD FOOTSWITCH socket.

Foot Switch

An optional DP-2, DP-6, or BOSS FS-5U footswitch connected to the FOOT SWITCH socket can be used to perform various functions. If you do not change the factory setting, this footswitch allows you to start and stop song playback.

Here's how to select another footswitch function:

- (1) Press the **[MENU]** button.



The display changes to:



- (2) Press the **[FOOTSWITCH]** field.



- (3) Press the field that corresponds to the desired footswitch function.
If necessary, press **[<]** (or **[>]**, on the second page) to change pages.

■ **Play/Stop:** Starts and stops song playback. Same function as the **[<|>]** button.

■ **Lower Hold:** The footswitch allows you to hold the Lower part.

■ **Sostenuto:** In this case, the footswitch functions as Sostenuto pedal (a pedal found on grand and digital pianos that allows you to sustain only those notes you played at the time you pressed the pedal).

■ **Soft:** In this case, the footswitch functions as Soft pedal (a pedal found on grand and digital pianos that reduces the volume).

■ **Rotary S/F:** Allows you to select the slow or fast speeds of the Rotary effect. This only works, if the Rotary effect is currently assigned to the Multi-FX.

■ **Talk:** The footswitch performs the same function as the **[TALK]** button in the VOCAL HARMONIZER section.

■ **Harmony On/Off:** The footswitch allows you to switch the currently selected HARMONY function (**[VOCODER]**, **[SMALL]** or **[ENSEMBLE]**) on and off. Select this function if you want to be able to switch the harmonies on for the choruses, and off for the verses (for example) while playing on the keyboard.

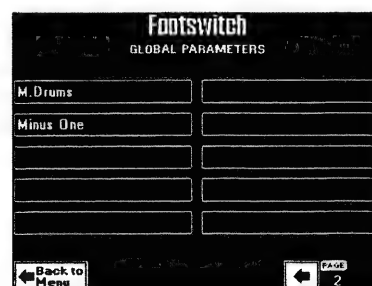
■ **Fade In/Out:** The footswitch performs the same function as the **[FADE]** button on the front panel. See also page 68.

■ **User Program Up:** Selects the next User Program (i.e. A12 if A11 is currently active).

■ **Favourite Tone Up:** The footswitch allows you to select the next FAVOURITE TONE memory. Example: If memory "7" of GROUP A is currently selected, pressing the footswitch takes you to memory "8".

You can also change GROUPS with this function. So after selecting "A8", pressing the footswitch again takes you to "B1".

Note: See page 36 for details about the TONE FAVOURITE function.



■ **M. Drums:** The footswitch can be used to activate and switch off the M. Drums part. If the **[SPLIT]** button lights, the M. Drums part replaces the Upper part. Otherwise, the M. Drums part is assigned to all keys.

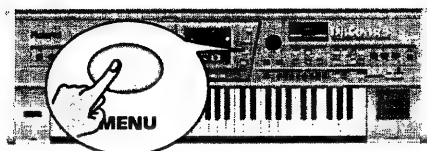
■ **Minus One:** The footswitch allows you to switch the Minus-One function on and off. See page 19 for how to select the option that will be used when the Minus-On function is on.

- (4) Press the **EXIT** button to return to the main page.

Expression (Foot Pedal)

An optional EV-5, EV-7 or BOSS FV-300L expression pedal connected to the FOOT PEDAL socket allows you to control the volume of the Keyboard parts. You can also specify to which Keyboard part(s) this function should apply, and how the pedal works:

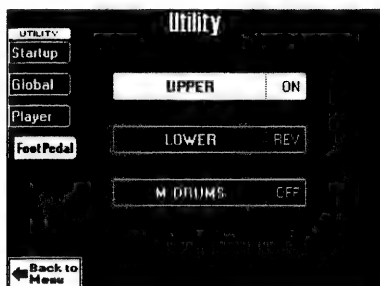
- (1) Press the **MENU** button.



The display changes to:



- (2) Press the **UTILITY** field. If the **FootPedal** field in the left corner is not displayed in white, press it.



- (3) Press the field of the Keyboard part whose expression assignment you want to change.

- (4) Use the **VALUE** dial to select one of the following options:

■ **ON:** The expression pedal is assigned to the selected Keyboard part.

■ **REV:** The expression pedal is assigned to the selected Keyboard part, but works the other way around: when the pedal is pressed (toe down), the Keyboard part is inaudible. When the pedal is up (heel down), the Keyboard part uses its maximum volume. You can use this for blending effects between the Upper ("ON") and Lower ("REV") parts, for example.

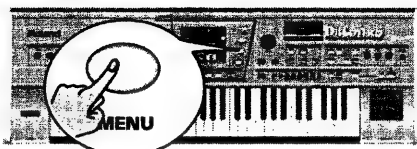
■ **OFF:** The expression pedal is not assigned to the selected Keyboard part.

Scale Tuning

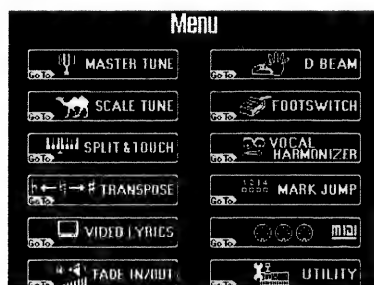
Another useful function is called *Scale Tuning*. It allows you to use oriental, Asian, and other scales in much the same way as on an oriental keyboard (EM-55 OR, etc.).

The DisCover 5 contains three memories where you can store your favorite tunings. These are three global memories that apply to all User Programs.

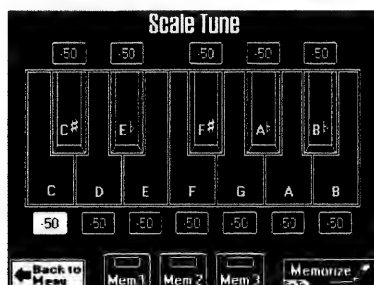
- (1) Press the **MENU** button.



The display changes to:



- (2) Press the **SCALE TUNE** field.



- (3) Press a **Mem 1**~**Mem 3** field to select a Scale Tuning memory.

This will change the pitch of the following notes ("–50" means that the note in question is tuned a quarter tone down):

Mem 1	Mem 2	Mem 3
E (–50)	E (–50)	C# (–50)
B (–50)	A (–50)	F# (–50)

The pitch of the other notes is left unchanged. The keys corresponding to the notes whose pitch is changed are displayed in white for easy identification.

You will notice that every note can be selected only once. That is because the value you specify applies to all notes of the same name. If you change the tuning of the "C", that value will be added to or subtracted from all Cs (C1, C2, C3, etc.). The on-screen keys are used as "on/off switches".

If you now returned to the main page, you would notice that the DisCover 5 alerts you to the fact that the Scale Tuning function has been switched on:



But let us not return to the main page just yet.

Changing the pitch of other notes

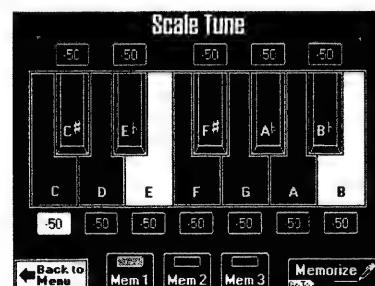
Changing the pitch of other notes than the ones already highlighted is a matter of pressing the desired on-screen keys in question. And defeating the pitch change of a key displayed in white is as easy as pressing that key again (it will once again be displayed in white).

Press all white on-screen keys (or the **Mem** field that is displayed in white) to switch the Scale Tuning function off again.

Customizing the pitch changes

At first, pressing an on-screen key, so that it is displayed in white, means that its pitch is lowered by 50 cents (1/4 tone, or "–50"). There may be situations where you actually want to raise the pitch of a note, or select a different tuning:

- (4) Press the on-screen key of the note/key whose pitch you want to change.



That field is displayed in white. As stated earlier, the pitch of all notes is at first set to "–50" (one quarter tone down). You can however, select any value between "–64" (slightly lower than a quarter tone down) and "63" (slightly higher than a quarter tone up).

- (5) Use the **VALUE** dial to set the desired pitch. If you selected a **Mem** field, an asterisk (*) is displayed to indicate that the stored settings have changed.

You can also select the desired value field with the **PREV** and **NEXT** buttons.

- (6) Repeat steps (4) and (5) for the other notes whose pitch you want to change.

Note: This pitch is only used when the corresponding on-screen key is displayed in white. Do not forget to switch it on.

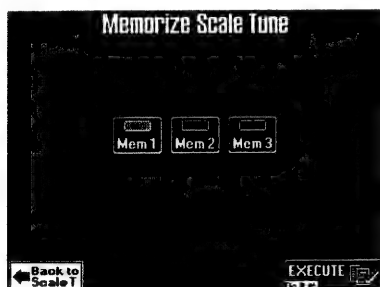
● **Storing your new scale**

If you think you'll need that scale in the future, you should write – or "Memorize" – it:

- (7) Program the scale you wish to save by switching the desired notes on or off (see above).

- (8) Press the **Memorize** field in the lower right corner of the display.

The display now looks as follows:



- (9) Press a **Mem 1**~**Mem 3** field to save your settings in the corresponding Scale Tuning memory.

The display now responds with the following message and then returns to the Scale Tune page.



- (10) Press the **EXIT** button to return to the main page.

5. Before you start editing (Menu)

The DisCover 5 provides a number of "hidden" functions you may only need every so often. Certain functions, though "on the menu", can also be selected by pressing and holding the assigned button. The following is only provided for your orientation, as all functions on this menu are covered elsewhere (where it makes sense to mention them). Yet other functions can be recalled via dedicated buttons and therefore do not appear on the Menu page.

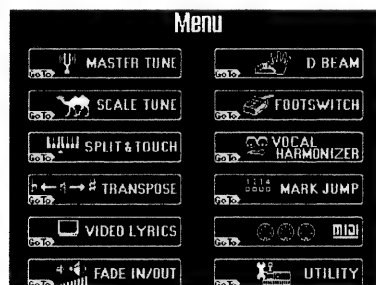
Here's what's part of the Menu environment and where to find details about those parameters.

Note: Except for the MASTER TUNE, MIDI, and UTILITY settings, all parameter values and assignments can be written to a User Program (page 80).

(1) Press the **MENU** button.



The display changes to:

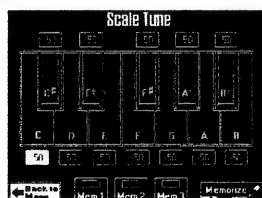


(2) Press the field that provides access to the function you are interested in:

- **MASTER TUNE**: Allows you to tune the DisCover 5 as a whole. p. 40
Use this parameter when you wish to accompany other instruments or play to a CD, cassette, etc.



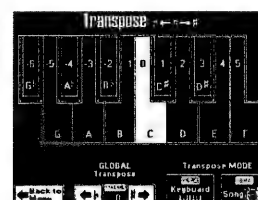
- **SCALE TUNE**: Allows you to use and/or program different tuning systems for oriental music, and the like. p. 45



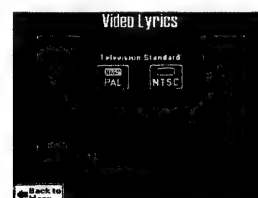
- **SPLIT & TOUCH**: Provides access to two parameters related to the Keyboard parts:
Split point p. 32
Touch sensitivity (dynamics) p. 39



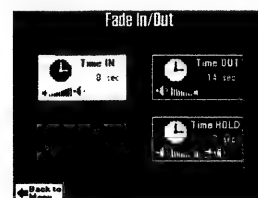
- **TRANSPOSE**: Allows you to set the transposition interval via the display and to specify which sections should be transposed. p. 38



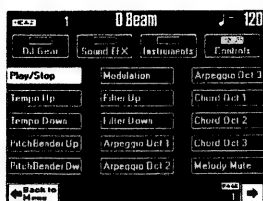
- **VIDEO LYRICS**: Allows you to make settings related to an optional TV screen or monitor. p. 30



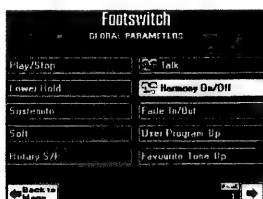
- **FADE IN/OUT**: Allows you to specify how fast fades triggered via the **FADE** button should be carried out p. 68



- **D BEAM**: Allows you to assign the desired function to the D Beam controller. p. 41



- **FOOTSWITCH**: Allows you to assign the desired function to an optional DP-2, DP-6, or BOSS FS-5U footswitch. p. 43



- **VOCAL HARMONIZER**: Provides access to settings with which you can fine-tune the Vocal Harmonizer's behavior for your own voice, transformed voice signals, and harmonies. You can also set the equalizer by pressing the **Equalizer** field.

Use the fields at the right edge of the display to select the part (mode) whose settings you wish to change p. 61



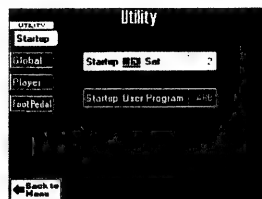
- **MARK JUMP**: Allows you to program the desired locations that can be recalled using the MARK JUMP **1**~**4** buttons. p. 69



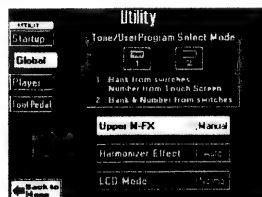
- **MIDI**: Provides access to the DisCover 5's MIDI parameters. p. 99



- **UTILITY**: Allows you to specify the following:
Which MIDI Set and/or User Program to load when the DisCover 5 is switched on. p. 85 and 104



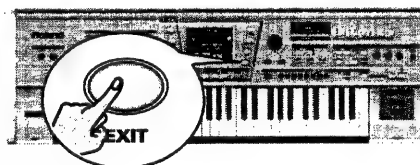
How the TONE/USER PROGRAM buttons should work p. 35
Whether the Multi-FX should be linked to the Tone selected for the Upper part. p. 54
Whether the pre-programmed effect settings should be loaded each time you press a button in the VOCAL HARMONIZER section. p. 55



To set playback-specific parameters (Player) p. 18

To select the Keyboard parts that should be affected by an optional expression pedal – and how this should be done (FootPedal) p. 44

- (3) Press the **EXIT** button to return to the main page.



6. Working with the Mixer & using effects

The MIXER environment does what its name suggests: it allows you to balance the various Keyboard parts of your DisCover 5. See page 87 and following for how to "mix" the song parts.

Your singing and the generated Vocal Harmonizer parts can be "mixed" using the **VOICE** and **HARMONY** knobs.

About the DisCover 5's effects

The DisCover 5 contains the following effects processors, not all of which are available for all sections. So please carefully study the following table:

Section	Effects processors	Remarks
Song	Reverb, Chorus	Same as Keyboard parts
Keyboard parts	Reverb, Chorus	Same as song section
Upper part	Multi-FX + same as above	Multi-FX only for Upper (and then no Chorus)
VOICE	Reverb, Delay, Compressor, Gate	Talk, Singer, Auto Tune, Voice FX
HARMONY	Reverb, Delay, Chorus	Vocoder, Small, Ensemble

The reason why we are talking about "processors" is that most of them can be used in various ways (by selecting a "Type"). The Multi-FX is, of course the most versatile processor, because it can use one of 47 types, while other processors provide 8 or 9 possibilities. Only the Compressor and Gate processors are "dedicated" effects: they can "only" function as Compressor or Gate.

Note: See page 62 for how to set the VOCAL HARMONIZER equalizers.

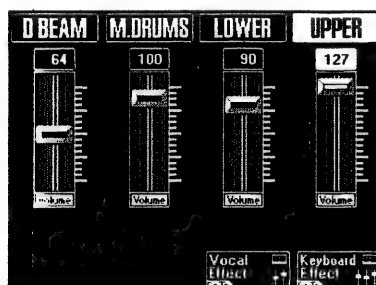
Mixing Keyboard parts

Here's how to set the balance and other "mix-related" parameters of the Keyboard parts.

- (1) Press the **MIXER/EFFECT** button.



The display changes to:



- (2) Move the on-screen sliders to set the desired volume for the various Keyboard parts.

The D BEAM part refers to the sounds that are generated when you use the D Beam controller after selecting the DJ GEAR, SOUND EFX or INSTRUMENT mode (scratches, sound effects, other "noises"). See page 41 for details.

Use these sliders as "sub mixer", to establish the correct balance between the Keyboard parts.

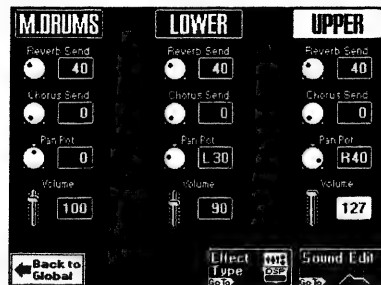
- (3) After setting these levels, you can use the **BALANCE** knob to establish the correct balance between the Keyboard parts and the song.

More refined Mixer settings

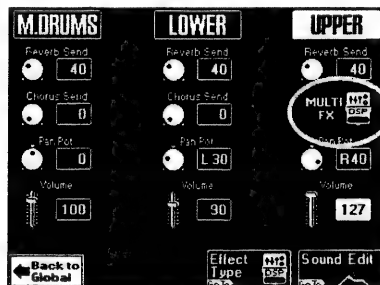
"Mixing", as you may know, entails a lot more than just getting the balances right. It also involves specifying the stereo placement of sounds and the amount of effect that should be applied. So here we go...

- (1) On the above display page, press the **Keyboard Effect** field.

The display changes to:



The "Chorus Send" parameter of the Upper part is not available when the **MULTI-FX** button lights. In that case, the page above looks as follows:



Note: There are no "Keyboard Mixer" parameters for the D Beam part. Moreover, this part is never processed by any of the Discover 5's effects.

- (2) Use the **PREV** and **NEXT** buttons to select the parameter you wish to edit, and set the desired value with the **VALUE** dial. Parameter fields can also be selected by pressing them.

■ **Reverb Send & Chorus Send:** Use these parameters to set the Reverb or Chorus send level (how much effect should be applied to the part in question). The effects themselves can be edited on the Effect page (see below).

Note: The M.Drums parameters on this page apply to the entire Drum Set and cannot be set for each drum/percussion instrument individually (unlike the send parameter of the song drum part).

■ **PanPot:** Use this parameter to set the stereo placement of the selected part. "L63" corresponds to hard left, "0" to dead center, and "R63" to hard right. "Rnd" means that the stereo position of each note changes.

■ **Volume:** Use this parameter to set the volume of the selected part. This parameter duplicates the sliders on the Global page.

[Back to Global] Press this field to return to the Global page (the one with the on-screen sliders).

[Sound Edit] See page 59.

[Effect Type] Press this field if you want to edit the effects settings themselves.

Editing the Keyboard (and song) effects processors

After setting the above parameters, you may find that even sensible Reverb/Chorus Send values for the Keyboard parts do not yield the expected result.

In that case, you should edit the Reverb and Chorus settings, by pressing the **[Effect Type]** field.

If, after pressing the **[MIXER/EFFECT]** button, the page with the faders is displayed, press the left **[Effect Type]** field (the one with the keyboard icon).

● Reverb for Keyboard parts

- (1) Press the **[Reverb]** field in the upper left corner to gain access to the Reverb parameters. The display changes to:



- (2) Press the field of the effect type you wish to use.

The options are:

[Room1], [Room2], [Room3] These types simulate the Reverb characteristics of a room. The higher the number (1, 2, or 3), the "bigger" the room becomes.

[Hall1], [Hall2] These types simulate the Reverb of a small (1) or large (2) concert hall and thus sound much "bigger" than the Room types above.

[Plate] Digital simulation of a metal plate that is sometimes used for creating Reverb effects. Works well for percussive sounds.

[Delay] A Delay effect (no Reverb). Works a lot like an echo effect and thus repeats the sounds.

[Pan Delay] This is a stereo version of the above Delay effect. It creates repetitions that alternate between the left and right channels.

If necessary, you can correct the Send levels after selecting a different Reverb type.

- (3) Use the **PREV** and **NEXT** buttons to select the parameter you wish to edit, and set the desired value with the **VALUE** dial. Parameter fields can also be selected by pressing them.

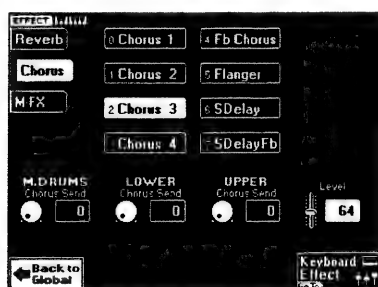
Level allows you to set the output level of the Reverb processor. Setting this parameter to "0" means that you no longer hear the effect in question.

By contrast, setting **Reverb Send** on the Keyboard Mixer page to "0" means that the selected Keyboard part is no longer processed by the effect, while the remaining Keyboard parts are.

- (4) Press the **Keyboard Effect** field to return to the page of the same name. Press **Back to Global** to return to the display page with the sliders.

● Chorus for Keyboard parts

- (1) Press the **Chorus** field in the upper left corner to gain access to the Chorus parameters. The display changes to:



- (2) Press the field of the effect type you wish to use.

Chorus broadens the spatial image of the sound and creates a stereo impression. You can choose from 8 types of Chorus.

Chorus1~**Chorus4** These are conventional Chorus effects that add spaciousness and depth to the sound.

Fb Chorus This type produces a Flanger-like effect and has a soft sound.

Flanger This is an effect that sounds somewhat like a jet airplane taking off and landing.

Delay This is a Delay (echo effect) with a short Delay time.

Pan Delay This is a short Delay with many repeats that alternate between the left and right channels.

If necessary, you can correct the Send levels after selecting a different Chorus type.

- (3) Use the **PREV** and **NEXT** buttons to select the parameter you wish to edit, and set the desired value with the **VALUE** dial.

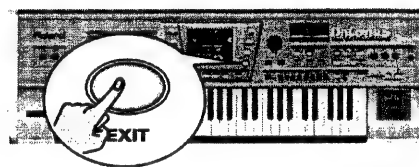
Note: UPPER Chorus Send is only available if the **MULTI-FX** button does not light. If it lights, the Upper part is not processed by the Chorus.

Level allows you to set the output level of the Chorus processor. Setting this parameter to "0" means that you no longer hear the effect in question.

By contrast, setting **Chorus Send** on the Keyboard Mixer page to "0" means that the selected Keyboard part is no longer processed by the effect, while the remaining Keyboard parts are.

You may have noticed the **MULTI-FX** field. That's up next. But first...

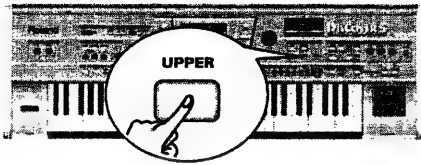
- (4) Press the **EXIT** button to return to the main page.



Using the multi-effects processor (Multi-FX)

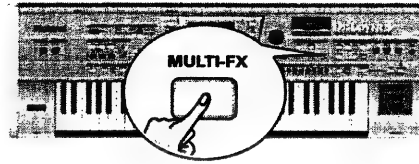
Your Discover 5 contains a multi-effects processor that can be used for processing the Upper part. If you switch it on, the Upper part is no longer processed by the Chorus effect.

- (1) Press the **UPPER** button (it must light).



- (2) Select the "A32 Jazz Organ" Tone:
Press **TONE**, **GROUP** (to select Group "A"), **3**, field **2**. The **MULTI-FX** button lights.
The Upper part is now processed by the effect type currently assigned to the Multi-FX processor ("Rotary").

- (3) Play a few notes on the keyboard, and switch the **MULTI-FX** button on/off to hear the difference.



- (4) Press the **BENDER/MODULATION** lever towards the back of the Discover 5.
The speed of the Rotary effect now changes (either slow or fast undulations).
Note: This switching function can also be assigned to an optional footswitch (see p. 43).

Selecting another Multi-FX type

The Rotary effect that is assigned to the Multi-FX by default is wonderful for organ and other sounds.

For a guitar sound, however, working with distortion can be more effective. In fact, the Discover 5 provides 47 different Multi-FX types, some of which are combinations of two effects for added flexibility. Here is how to select another Multi-FX type:

- (1) Press and hold the **MULTI-FX** button until the display looks as follows:



You can also select this page by pressing the **MULTI-FX/EFFECT** button → **Keyboard Effect** field → **Effect Type** field. But the above method is a lot faster.

- (2) Press one of the 12 fields in the upper part of the display to select another Multi-FX type.
(3) If none of the types on this page appeal to you, use the **PAGE 1~4** fields at the right to jump to another page with different types.

Note: Multi-FX type selection can be linked to Tone selection for the Upper part. See page 54.

The available types are:

Enhancer: An Enhancer controls the overtone structure of the high frequencies, adding sparkle and tightness to the sound.

Overdrv1~4: Overdrive creates a soft distortion similar to that produced by tube amplifiers. Several types of overdrive are available: (1) Small combo amp, (2) large combo amp, (3) Large double-stack amp (2 cabinets), (4) Large double-stack amp (3 cabinets).

Distort1~4: This effect produces a more intense distortion than Overdrive. The numbers refer to different kinds of distortion.

Phaser: Adds a phase-shifted sound to the original sound, producing a twisting modulation that creates spaciousness and depth.

AutoWah: The Auto Wah cyclically controls a filter to create cyclic change in timbre.

Rotary: Simulates the sound of a classic rotary speaker. This effect is most suitable for electric organ.

StFlangr: This is a stereo Flanger. It produces a metallic resonance that rises and falls like a jet airplane taking off or landing.

SpFlangr: A Step Flanger is a Flanger effect with clearly noticeable steps rather than continuous pitch changes.

Compress: A compressor reduces signal peaks and boosts low levels, smoothing out unevenness in volume.

Limiter: A limiter prevents the volume from exceeding a certain level without boosting low levels.

HexaCho: Hexa Chorus uses six layers of chorused sound to give richness and spatial spread to the sound.

Trem Cho: Tremolo Chorus is a Chorus effect with added Tremolo (cyclic modulation of the volume).

StChorus: This is a stereo Chorus.

Space-D: A multiple Chorus that gives no impression of modulation, but produces a transparent Chorus effect (the perfect "stereo maker").

StDelay: Delay is an effect that allows you repeat the input signal, thus creating echoes (repetition).

Mod Delay: This effect adds modulation to the delayed sound, producing an effect similar to a Flanger.

3Tap Dly: The Triple Tap Delay produces three delay sounds: center, left and right.

4Tap Dly: Delay with four repetition lines.

TmCtrDly: This effect controls the delay time and pitch in realtime. Lengthening the delay time will lower the pitch, and shortening it will raise the pitch.

Reverb: A nice Reverb effect.

GteRevNr: Gate Reverb is a special type of Reverb in which the reverberant sound is suddenly cut off (and does not gradually decrease).

GteRevRv: A gated Reverb effect that sounds "backwards".

GteRevS1: The reverberant sound moves from right to left.

GteRevS2: The reverberant sound moves from left to right.

2PtchShf: A Pitch Shifter changes the pitch of the original sound. This 2-voice effect contains two pitch shifters and adds two transposed copies to the original sound.

FbPtchShf: Pitch Shifter with several echoes.

OD►Chors: This effect connects an Overdrive and a Chorus in series. ("Series" means that the output signal of the first effect is also processed by the second.)

OD►Flger: This effect connects an Overdrive and a Flanger in series.

OD►Delay: This effect connects an Overdrive and a Delay in series.

DS►Chors: This effect connects distortion and a Chorus in series.

DS►Flger: This effect connects distortion and a Flanger in series.

DS►Delay: This effect connects distortion and a Delay in series.

EH►Chors: This effect connects an Enhancer and a Chorus in series.

EH►Flger: This effect connects an Enhancer and a Flanger in series.

EH►Delay: This effect connects an Enhancer and a Delay in series.

Cho►Dly: This effect connects a Chorus and a Delay in series.

FL►Delay: This effect connects a Flanger and a Delay in series.

Cho►Flger: This effect connects a Chorus and a Flanger in series.

Cho/Delay: This effect connects a Chorus and a Delay in parallel. ("Parallel" means that the input signal is processed by two effects that do not interact.)

FL/Delay: This effect connects a Flanger and a Delay in parallel.

Cho/Flger: This effect connects a Chorus and a Flanger in parallel.

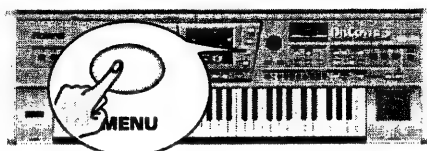
- (4) If you want to change other Mixer parameters of the Upper part, press the **Keyboard Effect** or **Back to Global** field. If you don't, press the **EXIT** button to return to the main page.

Linking Multi-FX type selection to the Upper part (Upper M-FX)

If you like, the DisCover 5 can automatically load the Multi-FX type that is suited for the Tone you assign to the Upper part.

A good example of this is the selection of the "Rotary" type for organ Tones. The status of the Multi-FX (on or off) is also memorized and may thus change. There may be times when you wish to remain in control yourself. In that case, proceed as follows:

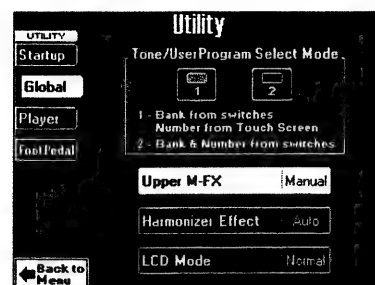
- (1) Press the **MENU** button.



The display changes to:



- (2) Press the **UTILITY** field.



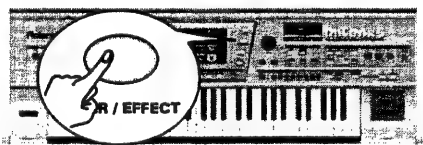
- (3) Press the **Global** field in the upper left corner.
- (4) Press the **Upper M-FX** field (or select it with the **PREV** **NEXT** buttons).
- (5) Use the **VALUE** dial to toggle between "Auto" and "Manual".
Select "Auto" if the DisCover 5 should choose a suitable Multi-FX type for each Tone you assign to the Upper part.
Select "Manual" if you do not want the Multi-FX to change automatically.
- (6) Press the **EXIT** button to return to the main page.

Voice and Vocal Harmonizer part mixing

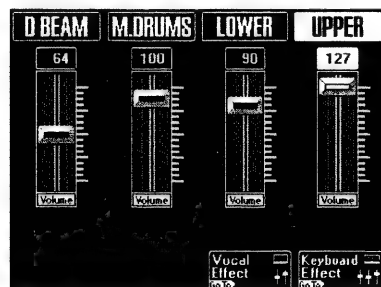
Your DisCover 5 provides three knobs (**VOICE**, **HARMONY**, and **EFFECTS**) that you can use without even bothering about the MIXER environment. That is why there are fewer MIXER functions for this section, but a lot more effects...

Note: For the following, it would be a good idea to set the **EFFECTS** knob at least to "▼" to hear what you are doing.

- (1) Press the **MIXER/EFFECT** button.

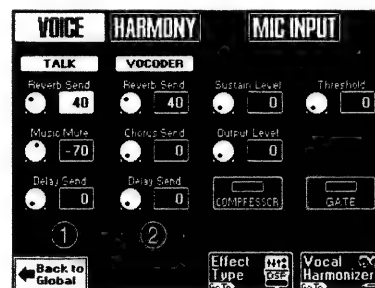


The display changes to:



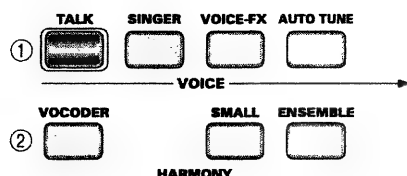
If it doesn't, press the **EXIT** button until you see this page.

- (2) Press the **Vocal Effect** field.



- About the **VOICE** & **HARMONY** columns
For the **VOICE** & **HARMONY** columns (marked "①" and "②" in the above illustration), you will notice a striking analogy with the button layout in the **VOCAL HARMONIZER** pad.
The part names that can appear in the **VOICE** column are: **TALK**, **SINGER**, **VOICE-FX**, or **AUTO TUNE**. → Processors: **Reverb**, **Delay**

Now look at the front panel:



Only one button in each row can be on at any one time. It therefore makes sense to use one set of effects processors for the upper row (VOICE column), and a second for the lower row (HARMONY column).

The part names that can appear in the **HARMONY column** are: VOCODER, SMALL, or ENSEMBLE. → Processors: Reverb, Chorus, Delay

The smaller names in the VOICE and HARMONY columns reflect the current settings of the VOCAL HARMONIZER section.

On the display page, TALK appears below VOICE. If you look at the button illustration (left), **TALK** currently lights.

- (3) Press the VOCAL HARMONIZER button of the part whose settings you wish to change.
- (4) Use the **PREV** and **NEXT** buttons to select the parameter you wish to edit, and set the desired value with the **VALUE** dial. Parameter fields can also be selected by pressing them.

● VOICE column

- **Reverb Send:** Allows you to specify how strongly the currently selected VOICE part should be processed by Reverb [1] of the VOCAL HARMONIZER section.

Reverb, Delay, and Chorus effects

For the following, it is very important that you read (and understand) the explanations under "About the VOICE & HARMONY columns" (p. 54).

Each Vocal Harmonizer part can have its own effects settings. These settings change automatically as you press **TALK**, **VOICE-FX**, **AUTO TUNE**, or **SINGER**, on the one hand, and **VOCODER**, **SMALL**, or **ENSEMBLE** on the other.

TALK can therefore use a short Reverb ("Room", for example), while **SINGER** can be processed with the "Church" algorithm, and so on. Thus, by pressing **VOICE-FX**, you not only select that part and its voice transformations, but also the Reverb and Delay settings you will (maybe) edit in a minute.

In fact, the Roland engineers already programmed the effects parameters for you, so that you only need to read on if you want to edit those presets yourself.

- **Music Mute (only for TALK):** Allows you to set the balance between the music and your announcements. The smaller the value, the softer the song's and Keyboard parts' volume will be. Select "0" if you do not want the music to be any softer than it already is.

- **Delay Send:** Allows you to specify how strongly the currently selected VOICE part should be processed by Delay [1] of the VOCAL HARMONIZER section.

● HARMONY column

- **Reverb Send:** Allows you to specify how strongly the currently selected HARMONY part should be processed by Reverb [2] of the VOCAL HARMONIZER section.

- **Chorus Send:** Allows you to specify how strongly the currently selected HARMONY part should be processed by the Chorus effect of the VOCAL HARMONIZER section. (The VOICE section doesn't have a Chorus effect.)

- **Delay Send:** Allows you to specify how strongly the currently selected HARMONY part should be processed by Delay [2] of the VOCAL HARMONIZER section.

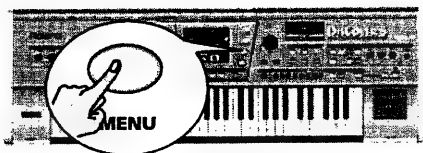
- (5) Repeat the above for the remaining combinations. All settings for all VOCAL HARMONIZER buttons are written to a User Program (page 80).
- (6) Set the MIC INPUT parameters as desired. As explained under "Compressor, Gate, and effects" (p. 21), the Compressor and Gate apply to the MIC INPUT signal before it reaches the VOCAL HARMONIZER section.
- (7) Press the **EXIT** button to return to the main page, or continue with the next section to program the effects processors.

► Extremely important remark

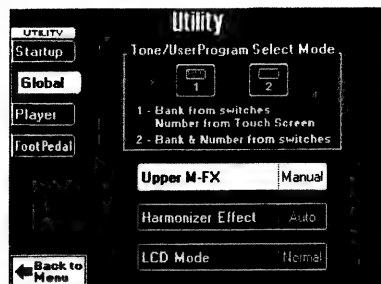
Before you even consider spending some time with the Vocal Harmonizer effects, you need to change the following parameter. If you don't, your changes will be lost as soon as you press another VOCAL HARMONIZER button.

Do **not** change this setting if you are happy with the way the effects sound and therefore have no intention to delve into this matter. The following setting is remembered even after you switch off your DisCover 5.

- (1) Press the **MENU** button.



- (2) Press the **UTILITY** field.

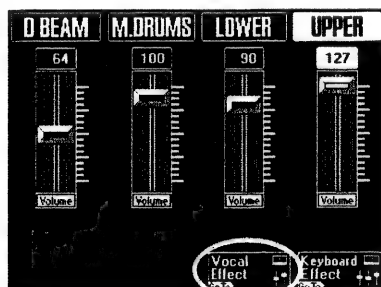


If the above page is not displayed, press the **Back to Global** field in the upper left corner.

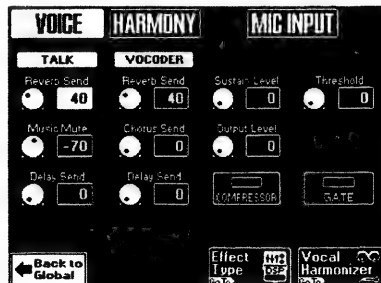
- (3) Press the **Harmonizer Effect** field.
- (4) Use the **VALUE** dial to toggle between "Auto" and "Manual".
Select "Auto" to use the most suitable effects presets for each preset.
Select "Manual" to leave the last effect settings you made intact (and change them, if necessary), then write them to a User Program (page 80).

► And now... the Vocal Harmonizer effects

- (1) Press the **MIXER/EFFECT** button.
The display changes to:



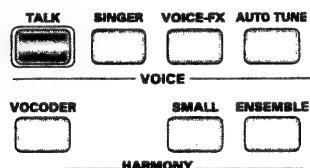
- (2) Press the **Vocal Effect** field.



- (3) Press the **Effect Type** field.



- (4) Decide which effects processor you wish to edit:
 - To edit a **VOICE** effect, press the **Reverb** or **Delay** field below "VOICE EFFECT".
 - To edit a **HARMONY** effect, press **Reverb**, **Chorus**, or **Delay** below "HARMONY EFFECT". Only the HARMONY parts (Vocoder, Small, Ensemble) have a Chorus processor. The parameters and presets for the Reverb and Delay processors differ between the VOICE EFFECTS and HARMONY EFFECTS sections.
- (5) Press the **VOCAL HARMONIZER** button for which you want to program the effect and talk/sing into the microphone while setting the following parameters.



If necessary, you can use the **VOICE** or **HARMONY** knob to temporarily set the volume of the part you don't want to hear to "0".

Reverb

Reverb for VOICE EFFECTS



- Press the field of the Reverb type you wish to use.

Note: The choice of the preset also affects the settings of the parameters below. Always start by selecting the type and then set the programmable parameters.

The names of these types (**Studio**~**Church**) are probably self-explanatory. You may notice that the Reverb character changes as you select different types.

- Use the **PREV** and **NEXT** buttons to select the parameter (knob icons) you wish to edit, and set the desired value with the **VALUE** dial. Parameter fields can also be selected by pressing them.

The three knob icons allow you to alter the selected Reverb type.

■ **Wall Type:** Allows you to specify the surface of the walls in the simulated location. This parameter determines the "brightness" and "liveness" of the effect. (Carpet, Wood, Brick, Concrete, Marble)

■ **Reverb Send:** This parameter reflects the setting on the Vocal Mixer page. It was provided so that you do not need to switch pages while editing the Reverb processor.

■ **Reverb Time:** Allows you to set the length (duration) of the Reverb effect if you do not agree with the "pre-setting".

Reverb for HARMONY EFFECTS



Except for the presets, this processor works exactly like its VOICE namesake.

Delay

Delay for VOICE EFFECTS



- Press the field of the Delay type you wish to use.

Note: The choice of the preset also affects the settings of the parameters below. Always start by selecting the type and then set the programmable parameters.

The names of these types (**Slow**~**Space**) are probably self-explanatory. You may notice that the Delay character changes as you select different types. Also note that some Delays are stereo. **Bubble** and **Space** are "special" effects you probably only need every so often.

- Use the **PREV** and **NEXT** buttons to select the parameter (knob icons) you wish to edit, and set the desired value with the **VALUE** dial.

Parameter fields can also be selected by pressing them.

The four knob icons allow you to alter the selected Delay type.

■ **Wall Type:** This parameter determines the "brightness" and "liveness" of the effect. (Carpet, Wood, Brick, Concrete, Marble)

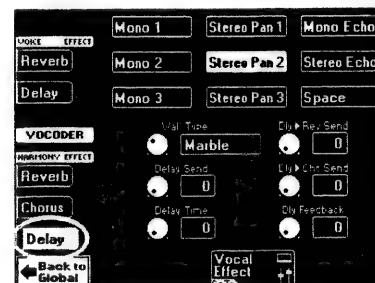
■ **Delay Send:** This parameter reflects the setting on the Vocal Mixer page. It was provided so that you do not need to switch pages while editing the Delay processor.

■ **Delay Time:** Allows you to set the "time lag" between the original and the effect signal. Combined with the "Dly Feedback" parameter, it sets the speed of the repetitions (echoes).

■ **Delay►Rev Send:** This parameter sets the amount of Delay sound that is sent to the Reverb. Higher values mean that the Delay portion will be more prominent in the Reverb signal. Be careful not to overdo this effect, because it tends to blur the sound image.

■ **Dly Feedback:** This parameter specifies the number of times the Delay will repeat. With a value of "0", the Delay will not repeat, while higher values increase the number of repeats. With negative (-) values, the Delay will be fed back with inverted phase. Negative values are mainly effective with short Delay times.

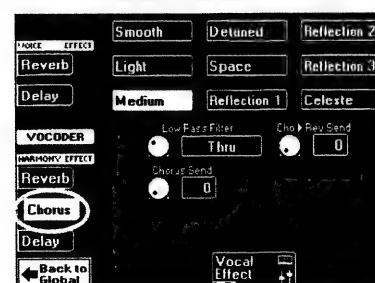
Delay for HARMONY EFFECTS



The presets on this page are different, while there is also one more parameter you can set (see above for the others):

■ **Delay►Cho Send:** Sets the amount of Delay sound that is sent to the Chorus. Higher values mean that the Delay portion will be more prominent in the Chorus signal.

Chorus (HARMONY EFFECTS)



- Press the field of the Chorus type you wish to use.

Note: The choice of the preset also affects the settings of the parameters below. Always start by selecting the type and then set the programmable parameters.

The names of these types ([Smooth]~[Celeste]) are probably self-explanatory. You may notice that the Chorus character changes as you select different types.

- Use the [PREV] and [NEXT] buttons to select the parameter (knob icons) you wish to edit, and set the desired value with the [VALUE] dial. Parameter fields can also be selected by pressing them.

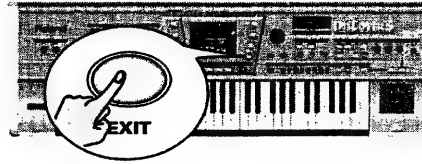
The three knob icons allow you to alter the selected Chorus type.

■ **Low Pass Filter:** A low-pass filter can be applied to the sound sent to the Chorus to cut the high frequency range. Higher values will cut more of the high frequencies, resulting in a more mellow Chorus sound.

■ **Chorus Send:** This parameter reflects the setting on the Vocal Mixer page. It was provided so that you do not need to switch pages while editing the Chorus processor.

■ **Cho► Rev Send:** This parameter sets the amount of Chorus sound that will be sent to the Reverb. Higher values result in more Chorus sound being sent. The value "90" effectively allows you to connect the Chorus and Reverb effects in series (Chorus before Reverb). If you do not wish the Chorus signal to be processed by the Reverb effect, set this value to "0".

- (6) Press the [EXIT] button to return to the main page.



Note: The first thing to do now is probably to write your settings to a User Program (page 80).

Note: For certain parts, there is also an equalizer. See pages 62 and 65 for how to set them.

7. Editing the Keyboard & Vocal Harmonizer parts

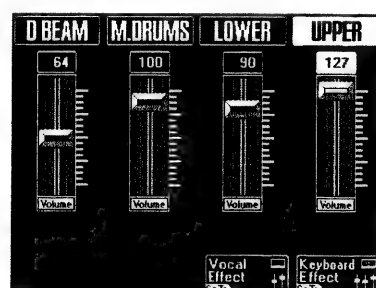
Editing the Keyboard parts (Sound Edit)

After selecting the desired Tones (or Drum Set) for the Keyboard parts –and probably before setting the Mixer parameters proper– you may want to change certain aspects so as to adapt them to your music. In fact, this adds “producing” to the mere mixing discussed earlier...

- (1) Press the **MIXER/EFFECT** button.



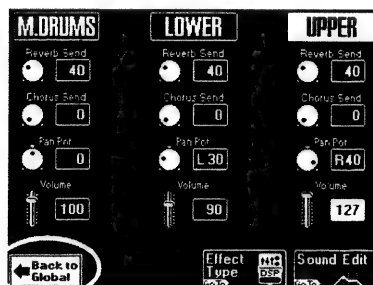
The display changes to:



If it does not, you may have to press the **Keyboard Effect** (if available) and/or **Back to Global** field at the bottom of the display.

(If a page with a **Sound Edit** field is displayed right away, you can skip steps (2) and (3).)

- (2) Press the **Keyboard Effect** field.



- (3) Press the **Sound Edit** field.

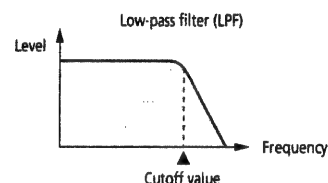


- (4) Press the field that corresponds to the Keyboard part you wish to edit (**Upper**, **Lower**, **M.Drums**, upper right).

If you press **Upper** or **Lower**, the display looks like the page shown above. If you press **M.Drums**, the display looks slightly different. See below.

- (5) The **Reset** field allows you to select the default value (usually “0”) for the currently selected parameter.
- (6) Use the **PREV** and **NEXT** buttons to select the parameter you wish to edit, and set the desired value with the **VALUE** dial. Parameter fields can also be selected by pressing them.

■ **Cutoff:** This filter parameter allows you to make the selected sound darker or brighter. Positive Cutoff settings mean that more overtones are allowed to pass, so that the sound becomes brighter. The further this value is set in the negative direction, the fewer overtones will be allowed to pass, and the sound will become softer (darker).



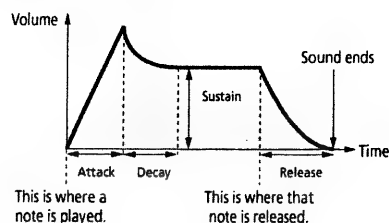
Note: For some sounds, positive (+) Cutoff settings may cause no noticeable change, because the pre-programmed Cutoff parameter is already set to its maximum value.

■ **Resonance:** This is a parameter one invariably associates with a synthesizer. When the Resonance value is increased, the overtones in the area of the cutoff frequency will be emphasized, creating a sound with a strong character.

Note: For some sounds, negative (–) Resonance settings may produce no noticeable change because the Resonance is already set to the minimum value.

The following parameters allow you to set the Tone’s “envelope”. The volume of an instrument changes with time, from the moment the note begins to sound to when it disappears. The envelope shape is unique to each instrument, and is an important element in how we distinguish the sounds we hear. The envelopes of musical instrument sounds can change depending on how the instrument is played. For example if a trumpet is played sharply and strongly, the attack will be quick and the sound will be sharp. But if a trumpet is played lightly and softly, the attack will be softer.

The envelope parameters affect both the volume (or amplitude) and the filter.



■ **Attack:** This parameter adjusts the onset of the sound. Negative values speed up the attack, so that the sound becomes more aggressive.

■ **Decay:** This parameter adjusts the time over which the sound will fall from the highest point of the attack down to the sustain level.

Note: Percussive sounds usually have a Sustain level of "0". Piano and guitar sounds are in this category. Holding the notes for a long time will thus have little effect on their duration.

■ **Release:** This parameter adjusts the time over which the sound will decay after the note is released until it is no longer heard. The cutoff frequency also falls according to this setting.

Vibrato is an effect created by modulating the pitch. It makes the sound more expressive. Use the following three parameters if you think the part in question has too much (or could use a little more) vibrato.

Note: Some "V" Tones contain natural (sampled) vibrato whose depth or speed cannot be changed.

■ **Vibrato Rate:** This parameter adjusts the speed of the pitch modulation. Positive (+) settings make the preset pitch modulation faster, and negative (-) settings make it slower.

■ **Vibrato Depth:** Sets the intensity of the pitch modulation. Positive (+) settings mean that the "wobble" becomes more prominent, while negative (-) settings make it shallower.

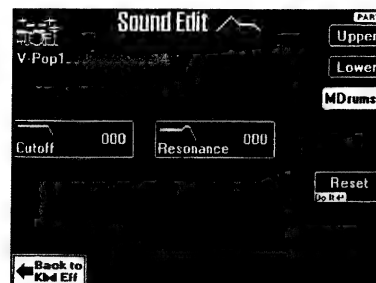
■ **Vibrato Delay:** This parameter adjusts the time required for the vibrato effect to begin. Positive (+) settings increase the delay, and negative settings shorten it.

- (7) Press the **[Back to Kbd Eff]** field to return to the Keyboard Mixer page.

Note: It would be a good idea to save these settings to a User Program (page 80).

► If you press **[M.Drums]**

...you can edit the Drum Set assigned to the M.Drums part as a whole.



The **[Reset]** field allows you to select the default value (usually "0") for the currently selected parameter.

■ **Cutoff:** Allows you to make the Drum Set (all instruments) brighter (positive values) or darker (negative values). The further this value is set in the negative direction, the fewer overtones will be allowed to pass, and the sound will become softer (darker).

■ **Resonance:** This parameter allows you to add a "synthetic" character to your Drum Sets (choose a positive value), or to make it sound more natural.

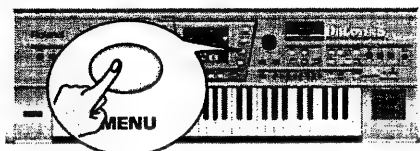
Note: It would be a good idea to save these settings to a User Program (page 80).

Editing the Vocal Harmonizer parts

Apart from the effects settings discussed earlier, there are also other VOCAL HARMONIZER settings that can be customized. There are additional parameters for all Vocal Harmonizer Parts except the TALK option.

Procedure for selecting these pages

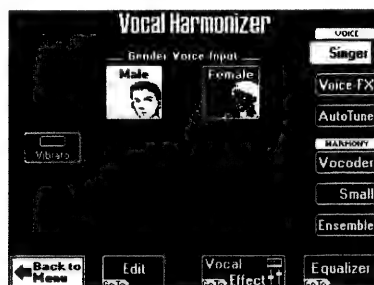
- (1) Press the **MENU** button.



- (2) On the MENU page that appears now, press the **VOCAL HARMONIZER** field.

Singer settings

When the **SINGER** button lights, your solo singing is output.



- (1) Press the **Male** or **Female** field.
This is an important indication for the HARMONY processor (Vocoder, Small or Ensemble). It does not change the character of your live singing, though.
Press the field that corresponds to your voice type. That way, the added harmony voices will sound even more convincing.
- (2) Press the **Vibrato** field to add an automatic Vibrato effect to your singing.
Note that this is probably only useful as gimmick: your natural vibrato no doubt sounds far more... natural. The Vibrato parameters can be set on the Edit page.
- (3) When you are done, either press the **EXIT** button to return to the main page, or one of the other fields in the right column to set those parameters as well.

Note: The **Vocal Effect** and **Equalizer** fields allow you to jump to the effects or tone controls.

- (3) In the right column, press the field that corresponds to the VOCAL HARMONIZER part you wish to edit.

You could also press and hold the corresponding button on the front panel.

It might be a good idea to connect a microphone and to sing/talk while making the following settings.

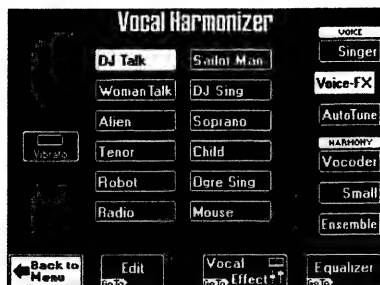
- If you press the **Edit** field...
...the display looks as follows:



- Use the **PREV** and **NEXT** buttons to select the parameter you wish to edit, and set the desired value with the **VALUE** dial.
Parameter fields can also be selected by pressing them.
For the following, the **Vibrato** indicator icon must be white for the effect to be noticeable.
 - **Vibrato Rate:** Sets the speed of the vibrato effect.
 - **Vibrato Depth:** Allows you to set the vibrato intensity. Vibrato is an effect that changes ("modulates") the pitch. The higher the Depth value, the more outspoken these periodic pitch changes will be.
 - **Rise Time:** Allows you to set a swell for the vibrato effect. This parameter specifies how long it takes before the Depth value is reached – once the Delay Time is up.
 - **Delay Time:** Allows you to set a delay between the moment you start singing and the moment the vibrato effect kicks in.
- Press **EXIT** (or **Back to Singer**) to leave this page.
- If you press the **Equalizer** field...
...the Vocal Equalizer page appears. It contains a simple equalizer for the Voice-FX, Auto Tune and Singer parts. See above.

Voice-FX settings

When the **VOICE-FX** button lights, your original voice will not be output by the Vocal Harmonizer. Instead, it will be changed (transformed) according to the preset you select here.



- (1) Press one of the 12 fields in the middle to select the kind of transformation you want.
- (2) Press the **Vibrato** field to add an automatic Vibrato effect to the transformed voice. The Vibrato parameters can be set on the Edit page.
- (3) When you are done, either press the **EXIT** button to return to the main page, or one of the other fields in the right column to set those parameters as well.

Note: The **Vocal Effect** and **Equalizer** fields allow you to jump to the effects or tone controls.

- If you press the **Edit** field...
...the display looks as follows:



Note: Be sure to select the desired preset before pressing the **Edit** field and modifying the following parameters.

- Use the **PREV** and **NEXT** buttons to select the parameter you wish to edit, and set the desired value with the **VALUE** dial. Parameter fields can also be selected by pressing them.

Here's what the parameters mean:

- **Gender:** Allows you to change the timbre of the part. Negative values produce a "masculine" effect, positive values add "feminine" qualities. This parameter should be set in relation to the Coarse parameter (if you want to achieve a realistic effect).
- **Pitch Coarse:** Allows you to transpose the processed voice signal in semitone steps. "12" corresponds to 1 octave, "24" to 2 octaves.
- **Pitch Fine:** Allows you to change the tuning of the processed voice in very small (cent) steps.

For the following, the **Vibrato** indicator icon must be white for the effect to be noticeable.

- **Vibrato Rate:** Sets the speed of the vibrato effect.
- **Vibrato Depth:** Allows you to set the vibrato intensity. Vibrato is an effect that changes ("modulates") the pitch. The higher the Depth value, the more outspoken these periodic pitch changes will be.
- **Rise Time:** Allows you to set a swell for the vibrato effect. This parameter specifies how long it takes before the Depth value is reached – once the Delay Time is up.
- **Delay Time:** Allows you to set a delay between the moment you start singing and the moment the vibrato effect kicks in.

- Press **EXIT** to leave this page (or **Back to V-FX** if you want to select another preset).

Note: If you select another preset, the Pitch and Vibrato parameters on the Edit page are reset to their factory values.

- If you press the **Equalizer** field...
...the display looks as follows:



This page contains a simple equalizer for the Voice-FX, Auto Tune and Singer parts.

- Use the **PREV** and **NEXT** buttons to select the parameter you wish to edit, and set the desired value with the **VALUE** dial. Parameter fields can also be selected by pressing them.

Equalizer Press this field to switch the equalizer of the corresponding part on or off. The parameter settings of that column are only used if the **Equalizer** indicator icon lights.

The equalizer can be used for two things: (a) emphasizing a specific frequency range to create a special effect or make the part more distinguishable; (b) to reduce the level of frequencies that mask other sounds or produce a "boomy" sound.

- **Frequency Hz:** Use this parameter to select the frequency whose level you wish to change with the Gain parameter. The smaller the value, the lower the frequency that will be boosted or cut.
- **Gain:** This parameter sets the level of the selected frequency. "0" means that the frequency's level does not change (no difference between equalizer on and off).

- Press **EXIT** (or **Back to Vocal H**) to leave this page.

Auto Tune settings

When the **AUTO TUNE** button lights, only the words you say will be used. The melody for these words is generated by the Vocal Harmonizer. This is similar to the Vocoder part, except that Auto Tune is monophonic (and thus meant as "solo voice").



- (1) Press the **Vibrato** field to add an automatic Vibrato effect to the generated voice. The Vibrato parameters can be set on the Edit page.

■ **OCTAVE**: If you are not happy with the register of the generated voice, you can transpose it up or down by up to 2 octaves.

- (2) Set the desired "Track" value with the **VALUE** dial.

■ **Track**: This is where you select the track that should supply the note information for the melody to be generated. In most instances "4" is a good choice, because that track usually contains the melody.

Note: Use the Minus One function to mute the selected track if it should not be played alongside the generated vocal part. See page 19 for details.

Press the **Left** and/or **Right** field if you want to use the melody you play on the keyboard. The "divide" between Left and Right follows the Split point setting (see p. 32).

- (3) When you are done, either press the **EXIT** button to return to the main page, or one of the other fields in the right column to set those parameters as well.

Note: The **Vocal Effect** and **Equalizer** fields allow you to jump to the effects or tone controls.

- If you press the **Edit** field...
...the display looks as follows:



- Use the **PREV** and **NEXT** buttons to select the parameter you wish to edit, and set the desired value with the **VALUE** dial. Parameter fields can also be selected by pressing them.

Here's what the parameters mean:

■ **Gender**: Allows you to change the timbre of the part. Negative values produce a "masculine" effect, positive values add "feminine" qualities.

■ **Portamento Time** & **Portamento**: See page 25.

■ **Pitch Bender**: Press this field (so that its indicator icon is white) if you want to influence the pitch of the voice effect using the DisCover 5's Pitch Bend lever.

■ **Vibrato Rate, Depth, Rise Time, Delay Time**:

These are the same parameters as for the Voice-FX part. See therefore page 62. This time, however, they apply to the Auto Tune part.

Note: The **Vibrato** indicator icon must be white for the Vibrato effect to be noticeable.

- Press **EXIT** (or **Back to A-Tune**) to leave this page.

- If you press the **Equalizer** field...

...the Vocal Equalizer page appears. It contains a simple equalizer for the Voice-FX, Auto Tune and Singer parts. See above.

Vocoder settings

The Vocoder page is the first page that is related to voices that are added to your (or the Discover 5's) singing (Voice-FX, Auto Tune or Singer).

When the **VOCODER** button lights, "synthetic" harmonies are added to your singing, whereby the words you say are used to change the timbre of the sound used as "carrier". Unlike the Auto Tune function, the Vocoder is polyphonic and can generate up to four harmony voices.

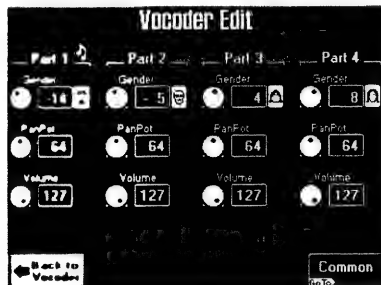


- (1) In the GENDER column (left), press the field that corresponds to the kind of "synthesizer choir" you want to add to your singing. Press **Male** for a darker character, or **Female** if the Vocoder signals should be reminiscent of female voices. Press **Mix** to create a mixed choir.

The field you press here determines what presets are available. See also page 26.

Note: the **Effect** and **Equalizer** fields allow you to jump to the effects or tone controls.

- If you press the **Edit** field...
... the display looks as follows:



This page also appears when you press the **Part 1-4** field on the Common page (see below).

The note icons next to the Part 1-4 entries indicate the Vocoder parts that are currently playing. This may help you to decide which part needs to be corrected.

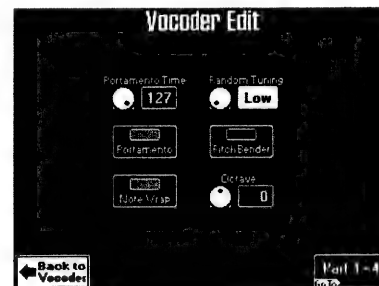
As a rule, the Vocoder works as follows: the lowest note played by the selected song part or yourself is assigned to "Part 1", while the highest is assigned to "Part 4". So always start editing "from bottom to top".

- Use the **PREV** and **NEXT** buttons to select the parameter you wish to edit, and set the desired value with the **VALUE** dial.

Parameter fields can also be selected by pressing them.

- **Gender:** Allows you to change the timbre of the part. Negative values produce a "masculine" effect, positive values add "feminine" qualities.
- **PanPot:** Allows you to set the placement of the corresponding part in the stereo sound image. This is only meaningful if you connect the Discover 5 to a stereo amplifier. "L63" corresponds to hard left, "0" to dead center, and "R63" to hard right. "Rnd" means that the stereo position of each note changes.
- **Volume:** Allows you to set the level of the corresponding part. Be aware that even the maximum value produces no audible effect if the **HARMONY** knob is set all the way to "MIN".

- Press the **Common** field to jump to the following page.



- Use the **PREV** and **NEXT** buttons to select the parameter you wish to edit, and set the desired value with the **VALUE** dial. Parameter fields can also be selected by pressing them.
- Press the **Portamento** field to switch this effect on. "Portamento" means that the pitch doesn't change in clearly defined steps: it produces glides from one note to the next.

■ **Portamento Time:** Use this parameter to specify the speed at which the glides are carried out. The higher the value, the slower the transitions.

■ **Random Tuning:** This parameter allows you to introduce subtle (or not-so-subtle) pitch inaccuracies usually associated with analog synthesizers. Irrespective of the choice you make here (Low, Middle, High), the effect will be noticeable, but never overly dramatic. Select "Off" if you do not need this effect. This is not the same as a vibrato effect, because it only affects the onset of the notes. There is thus no periodic modulation of the pitch. And "Random" means that the exact detuning is unpredictable and therefore changes with every chord the Vocoder processes.

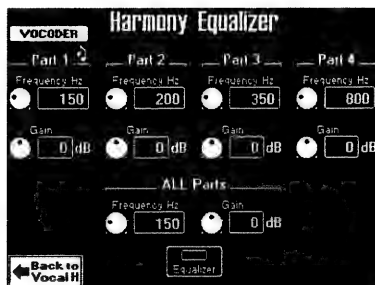
■ **Note Wrap:** Activate this field if the Vocoder notes should remain within a "natural" range. If it is off, some notes may sound too high or too low.

■ **Octave:** This parameter allows you to transpose the Vocoder in octave steps.

■ **Pitch Bender:** Press this field (so that its indicator icon is white) if you want to influence the pitch of the voice effect using the DisCover 5's Pitch Bend lever.

- Press **[EXIT]** or **[Back to Vocoder]** to leave this page, or **[Part 1-4]** for even more control over the Vocoder effect.

- If you press the **[Equalizer]** field...
...the display looks as follows:



This page contains a simple equalizer for each separate Vocoder part, as well as an EQ band that applies to all four voices simultaneously for added flexibility. These are connected in series.

Small settings

When the **[SMALL]** button lights, two-part harmonies are added to your singing. This page allows you to specify what kinds of voices will be used for these harmonies.



- (1) In the GENDER column (left), press the field that corresponds to the kind of choir you want to add to your singing.

Press **[Male]** for a man's choir, or **[Female]** for female voices. Press **[Mix]** to create a mixed choir. The field you press here determines what presets are available. The choice of the preset sets the number of voices (1 or 2) that will be added.

Note: For an optimum effect, be sure to set the GENDER VOICE INPUT parameter to match your voice type. See page 61.

- (2) Use the **[PREV]** and **[NEXT]** buttons to select the parameter you wish to edit, and set the desired value with the **[VALUE]** dial. Parameter fields can also be selected by pressing them.

- Use the **[PREV]** and **[NEXT]** buttons to select the parameter you wish to edit, and set the desired value with the **[VALUE]** dial.

Parameter fields can also be selected by pressing them.

[Equalizer] Press this field to switch all equalizers on this page on or off. The equalizer can be used for two things: (a) emphasizing a specific frequency range to create a special effect or make the part more distinguishable; (b) to reduce the level of frequencies that mask other sounds or produce a "boomy" sound.

■ **Frequency Hz:** Use this parameter to select the frequency whose level you wish to change with the Gain parameter. The smaller the value, the lower the frequency that will be boosted or cut.

■ **Gain:** This parameter sets the level of the selected frequency. "0" means that the frequency's level does not change (no difference between equalizer on and off).

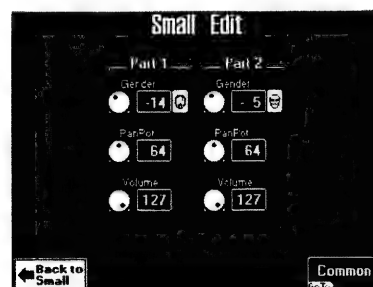
- Press **[EXIT]** (or **[Back to Vocal H]**) to leave this page.

Note: When one of the Vocal Equalizers is on (page 62), the Vocoder, Small and Ensemble parts lose one voice (so that 3 voices are available for Vocoder and Ensemble, and 1 for Small).

■ **Harmony Voice Assign:** See "Who specifies the harmonies?" (p. 23).

■ **Octave (-1~1):** This parameter allows you to transpose the harmony voices one octave up or down. Use it if you think the arrangement becomes a bit "cluttered", or to achieve a special effect.

- If you press the **[Edit]** field...



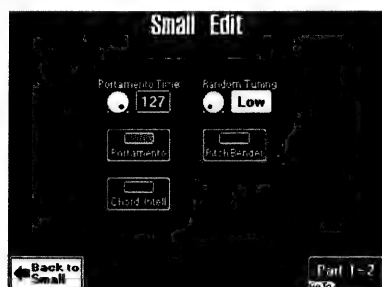
(You can also select this page by pressing the **[Part 1-2]** field on the "Common" page, see below.)

As a rule, the SMALL harmony system works as follows: the lowest note played by the selected song part or yourself is assigned to "Part 1", while the second is assigned to "Part 2".

- Use the **[PREV]** and **[NEXT]** buttons to select the parameter you wish to edit, and set the desired value with the **[VALUE]** dial. Parameter fields can also be selected by pressing them.

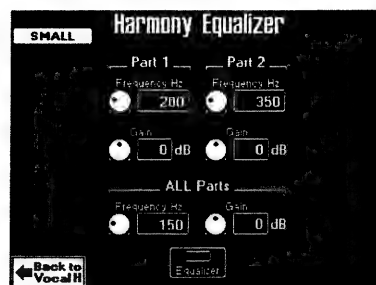
- **Gender:** Allows you to change the timbre of the part. Negative values produce a "masculine" effect, positive values add "feminine" qualities.
- **PanPot:** Allows you to set the placement of the corresponding part in the stereo sound image. This is only meaningful if you connect the DisCover 5 to a stereo amplifier. "L63" corresponds to hard left, "0" to dead center, and "R63" to hard right. "Rnd" means that the stereo position of each note changes.
- **Volume:** Allows you to set the level of the corresponding part. Be aware that even the highest value produces no audible effect if the **[HARMONY]** knob is set all the way to "MIN".

- Press the **[Common]** field to jump to the following page.



- Use the **[PREV]** and **[NEXT]** buttons to select the parameter you wish to edit, and set the desired value with the **[VALUE]** dial. Parameter fields can also be selected by pressing them.
- Press the **[Portamento]** field to switch this effect on. "Portamento" means that the pitch doesn't change in clearly defined steps; it produces glides from one note to the next.
 - **Portamento Time:** Use this parameter to specify the speed at which the glides are carried out. The higher the value, the slower the transitions.
 - **Random Tuning:** This parameter allows you to introduce subtle (or not-so-subtle) pitch inaccuracies usually associated with analog synthesizers. Irrespective of the choice you make here (Low, Middle, High), the effect will be noticeable, but never overly dramatic. Select "Off" if you do not need this effect.
 - **Chord Intell:** The Vocal Harmonizer usually organizes the added voices in a musically logical way (making them suitable for jazz, ballads, etc.). Switch this parameter on if you wish to obtain natural voicings for the harmony parts added to your voice.
 - **Pitch Bender:** Press this field (so that its indicator icon is white) if you want to influence the pitch of the voice effect using the DisCover 5's Pitch Bend lever.
- Press **[EXIT]** or **[Back to Small]** to leave this page, or **[Part 1-2]** for even more control over the Small effect.

- If you press the **[Equalizer]** field...
...the display looks as follows:



This page contains a simple equalizer for either **SMALL** part, as well as an EQ band that applies to both voices simultaneously for additional flexibility.

- Use the **[PREV]** and **[NEXT]** buttons to select the parameter you wish to edit, and set the desired value with the **[VALUE]** dial. Parameter fields can also be selected by pressing them.
- [Equalizer]** Press this field to switch all equalizers on this page on or off. The equalizer can be used for two things: (a) emphasizing a specific frequency range to create a special effect or make the part more distinguishable; (b) to reduce the level of frequencies that mask other sounds or produce a "boomy" sound.
 - **Frequency Hz:** Use this parameter to select the frequency whose level you wish to change with the Gain parameter. The smaller the value, the lower the frequency that will be boosted or cut.
 - **Gain:** This parameter sets the level of the selected frequency. "0" means that the frequency's level does not change (no difference between equalizer on and off).
- Press **[EXIT]** (or **[Back to Vocal H]**) to leave this page.

Note: When one of the Vocal Equalizers is on (page 62), the Vocoder, Small and Ensemble parts lose one voice (so that 3 voices are available for Vocoder and Ensemble, and 1 for Small).

Ensemble settings

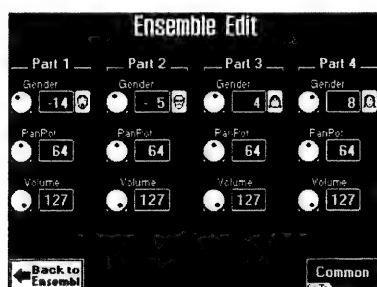
When the **ENSEMBLE** button lights, four-part harmonies are added to your singing. This page allows you to specify what kinds of voices will be used for these harmonies.



With the exception of the fact that up to four voices are generated, the parameters and fields on this page work exactly like for "Small", so please see above.

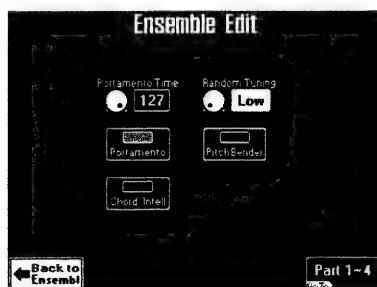
Note: The **Vocal Effect** and **Equalizer** fields allow you to jump to the effects or tone controls.

- If you press the **Edit** field...



See page 64. This page can also be selected via the **Part 1-4** field on the Common page.

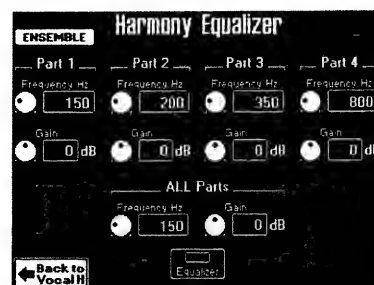
- If you press the **Common** field...
...the display looks as follows:



See the explanations under "Small settings".

- Press **EXIT** or **Back to Ensembl** to leave this page, or **Part 1-4** for even more control over the Ensemble effect.
- Press the **Common** field to return to the previous page.

- If you press the **Equalizer** field...
...the display looks as follows:



This page contains a simple equalizer for the four ENSEMBLE parts, as well as an EQ band that applies to all four voices simultaneously for added flexibility.

- Use the **PREV** and **NEXT** buttons to select the parameter you wish to edit, and set the desired value with the **VALUE** dial. Parameter fields can also be selected by pressing them.

Equalizer Press this field to switch all equalizers on this page on or off. The equalizer can be used for two things: (a) emphasizing a specific frequency range to create a special effect or make the part more distinguishable; (b) to reduce the level of frequencies that mask other sounds or produce a "boomy" sound.

■ **Frequency Hz:** Use this parameter to select the frequency whose level you wish to change with the Gain parameter. The smaller the value, the lower the frequency that will be boosted or cut.

■ **Gain:** This parameter sets the level of the selected frequency. "0" means that the frequency's level does not change (no difference between equalizer on and off for that particular part, or the overall EQ band).

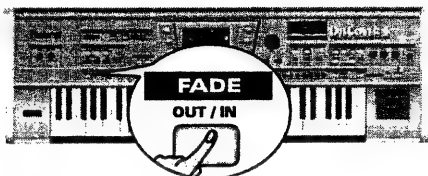
- Press **EXIT** (or **Back to Vocal H**) to leave this page.
Note: When one of the Vocal Equalizers is on (page 62), the Vocoder, Small and Ensemble parts lose one voice (so that 3 voices are available for Vocoder and Ensemble, and 1 for Small).

8. More refined song functions

Let us now take a look at additional and more refined functions you can use for song playback.

Using the Fade-In/Out function

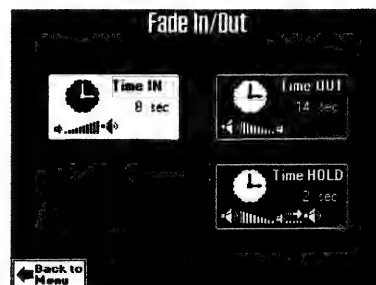
The **FADE** button can be used for two things, depending on whether you press it before or during song playback:



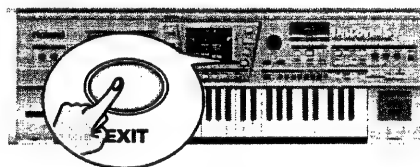
- If pressed while playback is stopped
The **FADE** button flashes until you press the **▶/■** button, and the **Fade-In** starts.
Fading in means that the volume of both the song and Keyboard parts (but neither the Vocal Harmonizer signal, nor your voice) gradually increases, giving the impression that you have been playing for a long time before the music becomes audible. The volume is automatically set to zero and then gradually increased to the value specified with the **VOLUME** knob. When the Fade In is completed, the **FADE** button goes dark.
- If pressed while playback is running
The **FADE** button flashes and the volume gradually decreases until it reaches zero (button lights steadily). This is called a **Fade-Out**.
Fade Outs are extremely popular in pop music, and the DisCover 5 allows you to end a song just like the original.

If you think the Fade-In or Fade-Out takes too much time, here's how to change it:

- (1) Press and hold the **FADE** button.
The display changes to:



- (2) Press the field that provides access to the parameter you wish to change.
Press **Time IN** to change the Fade-In time (0~20 seconds).
Press **Time OUT** to change the Fade-Out time (0~20 seconds).
Press **Time HOLD** to set how long it takes for the volume to return to the **VOLUME** setting (0~10 seconds) after completing the fade-out. Do not select too short a value, because that might produce highly unprofessional level jumps.
- (3) Use the **VALUE** dial to set the desired value.
- (4) Press the **EXIT** button to return to the main page, or **Back to Menu** to return to the menu.

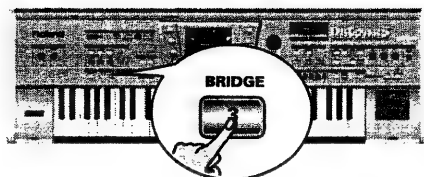


Programming MARK JUMP locations

All songs on the supplied SmartMedia card come with four locations already memorized that can be selected by pressing MARK JUMP [1]~[4] (page 17).

Editing and programming MARK JUMP locations can be carried out as follows:

- (1) Press and hold a MARK JUMP button [1]~[4].



Press whichever button you like. The display changes to:



- (2) Press the field that corresponds to the MARK JUMP button for which you wish to program a different location (1~4).

The following can be done both during playback and while it is stopped.

- (3) Do one of the following:

- Press the **Current MEASURE** field. This inserts the number of the current measure in the white field.
- Use the numeric keypad to enter the desired measure number. Press **Delete** to dispose of the last number you entered.

Example: if you wanted to enter "14" and then notice that you pressed the [4] field twice ("144"), press **Delete** to get rid of the second "4".

As soon as you enter a new value, an **EDIT** message appears next to the memory number:



- (4) Press the **MARK** field to confirm your setting.
The **EDIT** message disappears.

Repeat steps (2)~(4) to program new locations for the remaining MARK JUMP buttons.

- (5) Press the **Remove** field to clear the measure indication of the selected MARK JUMP button.

MARK JUMP buttons for which a location has been programmed light.

Pressing a MARK JUMP button for which no measure location has been entered (in which case the indicator does not light) has no effect.

Want to save time? Here's the quickest way to program MARK JUMP locations:

- Select the song you want to program MARK locations for.
- Select the Mark Jump Edit page (see above).
- Press [4] to return to the beginning of the song, then [F7] to start playback.
- Press the [1] field to select it.
- Press the **MARK** field where you want the first marker to be. This position is memorized.
- Press the **NEXT** button (below the **VALUE** dial) to select memory [2].
- Press the **MARK** field where you want the second marker to be.
- Repeat the previous two steps for memories [3] and [4].
- Continue with step (6).

- (6) Press the **Save** field.



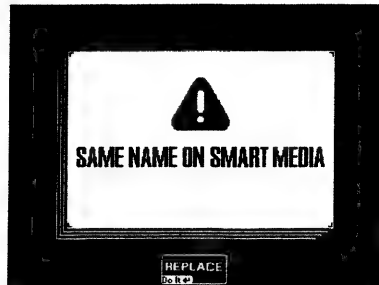
The MARK JUMP locations are additional information for song files that need to be saved to floppy disk or SmartMedia card.

- (7) If necessary, change the song's name.

You only need to do this if you want to preserve the original version. The MARK JUMP information can only be read by the DisCover 5, and so is of little use to other sequencers or SMF players: they simply ignore it. So you might as well save the song under its original name. Besides, you can also save the song to a different card or disk.

See page 29 for how to enter a different name.

- (8) Press the **[SMART MEDIA]** or **[FLOPPY]** field to select the Save destination.
- (9) Press the **[EXECUTE]** field.
If you selected the drive that contains the original version, the following message is displayed:



If you pressed the **[FLOPPY]** field, the message reads "SAME NAME ON DISK".

- Press the **[REPLACE]** field to overwrite the old version.
Press the **[EXIT]** button on the Discover 5's front panel if you do not want to overwrite this song and return to the previous page. Then enter a different name (or select a different media).
If the song doesn't yet exist on the selected SmartMedia card or floppy disk, the data are saved, and the following message appears:



Working with the Song Finder

You already know the main aspects of the Song Finder, so let's have a more detailed look at it.

The Song Finder is used for quickly locating the songs you want to play back. You will see in a minute that it is far more powerful when you work with SmartMedia cards than when you work with floppy disks.

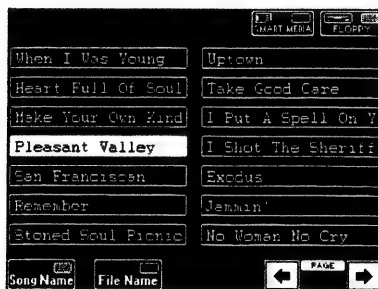
- (1) Press the **[SONG/RHYTHM FINDER]** button.



You can also press the **[SONG]** field in the upper left corner of the display (if available) to select songs.

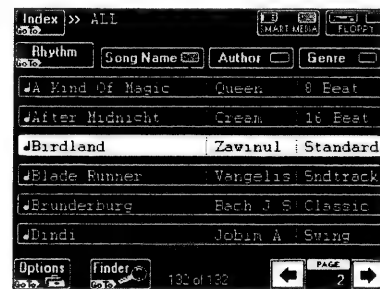
- (2) Press the **[SMART MEDIA]** or **[FLOPPY]** field in the upper right corner.

If you press **[FLOPPY]**...
... the display looks as follows:



The **[Song Name]** and **[File Name]** fields allow you to select between a list of readily understandable song names and slightly more cryptic file names (limited to 18 characters). Choose whichever is more convenient.

- If you press **[SMART MEDIA]**...
...the display changes to:



"xx": found entries.

"yy": total number of songs on the card.

Note: If no song list is displayed, please select "All" in order to display all song file names.

The **[Song Name]**, **[Author]**, and **[Genre]** fields allow you to sort songs on the SmartMedia card in alphabetical order.

This alphabetical sorting is determined by the selected category. In the above example, **[Song Name]** is selected.

- (3) Press the **[Rhythm]** field to select drum patterns.



The "Rhythm" index provides access to 32 "drum songs", which reside on the supplied SmartMedia card. These SMF songs can assume the role of a simple rhythm box.

They only contain a drum part, which may come in handy when you wish to play the accompaniment yourself or when you are playing with a bassist.

- Press the field of the rhythm accompaniment you need.

- Use the MARK/JUMP buttons (see p. 69) for stepping through the various "patterns" (intro, verse, chorus, ending).

- (4) After the above, press the **SONG** field to return to all songs on the SmartMedia card.
- (5) If available, press the field of the song you need.

If the name is not displayed, use **←** or **→** to go to a different page. In the case of a SmartMedia card, you can also use the following...

Locating files with the Song Finder

Allow us to once again remind you that the following is only available for SmartMedia cards.

a) Choose a category (Index)

The highest hierarchical level of the Song Finder database is called "Index". All search operations apply to the selected Index (and therefore not necessarily to all files on card).

- Press the **Index** field in the top left corner.



- Either press the field that corresponds to the desired song category, or –if you're not sure which category the song belongs to– press **ALL**. (This may be a safer bet.)
- Now return to the previous page by pressing **Back to SongList**.

b) Select the Finder

The powerful part starts as soon as you press the **Finder** field.



c) Decide what you want to look for

- Press the **Song Name** field if you want the DisCover 5 to look for song names, then enter the name (or part of it).
- Press the **Author** field if you want to look for an artist's name, then enter the name (or part of it).
- Press the **Genre** field to locate a specific genre (Rock'n'Roll, 16-Beat, etc.), then enter the desired characters.

● Entering characters

Enter only as many characters as you think are necessary to find the song you are after. The character string you enter can be used in two ways (see below).

- Use the **←** and **→** fields to select the position for which you wish to enter a new character.
- Use the alphanumeric keypad in the right corner to enter the desired characters. This keypad works exactly like the keypad of a cellphone: you may have to press an alphanumeric field several times to select the desired character or number.

Note: There is no **A/a** field here, because the Finder makes no distinction between upper- and lower-case letters.

- The **Delete** field allows you to delete the inverted character.
- Press **Space** to insert a blank (or the number "0").
- If you forgot to insert a character, use **←** or **→** to select the position where the missing character should be inserted. Then press **Insert**, followed by the character you wish to insert.
- To enter numbers quickly (without cycling through the characters first), press the **Num Lock** field, so that its indicator icon lights. After entering the numbers, switch it off if you need to enter characters again.

d) Search the database

The next step is to decide how the Song Finder should look for the files:

- Press the **[Alphabetic Order]** field to search for all entries that start with the characters you entered ("BEA", for example). Files that match the specified criteria will be displayed at the top of the list.

The order depends on whether you entered the name in the **[Song Name]**, **[Author]**, or **[Genre]** field.

- Press the **[Find Only]** field to have the DisCover 5 search the selected column for files that contain the supplied information. (This would allow you to also locate a file called "Raggabeat" if you entered "BEA".)

Note: See p. 16 for how to use the Play & Search function.

If the following message appears, the DisCover 5 was unable to locate any files that match the search criteria:



In that case all song names are listed (the "xx of yy" entry lists twice the same number of files).

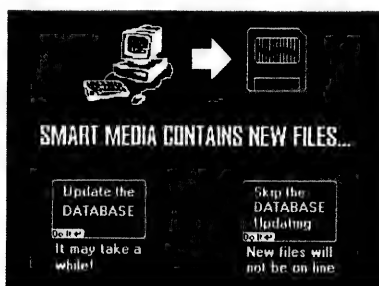
If the DisCover 5 did find one or several matches, the "xx" number will be smaller than the "yy" number.

- Press the field of the song you need and do your thing.

Editing the Song Finder information

The Finder information is based on search criteria that are added to plain and simple Standard MIDI Files. The information is therefore not contained in the files themselves and needs to be added for new files you copy to your SmartMedia card. That is a process we call "editing".

The database (which is a separate file) must be managed and maintained on the DisCover 5. You can copy files to a SmartMedia card on your PC (provided you have the appropriate device for that), but if you then insert the card into the DisCover 5's slot, the following message appears:



It means that the DisCover 5 found files for which no Song Finder information is available.

- Press **[Update the DATABASE]** to make the new files "DisCover 5 savvy". This only adds the Song Name – the rest must be entered manually (see below).

Note: Depending on the number of songs you copied to the SmartMedia card, this update may take some time. But it's worth it, so please be patient.

- Press the **[Skip DATABASE Updating]** field if you do not wish to update the database now. In that case, however, such new "PC songs" are "invisible" to the Finder.

Song Options

As you know, after pressing the **[SONG FINDER]** button next to the display, followed by the **[SMART MEDIA]** field, the display looks as follows:



The field in the lower left corner provides access to a display page where you can add database information to "known" files (see above). This also works for songs that already contain entries you wish to modify.

- (1) First select the song whose database information you wish to change or edit by pressing its field.

- (2) Press the **Options** field.



The name of the selected song as well as the Author and Genre information (if available) are displayed below the three options (Rename, Delete, P&S Input).

- (3) Now do one of the following:

● Rename

This function allows you to change the Song Name, Author, and/or Genre entry of the selected song.

- Press the **Song Name**, **Author**, or **Genre** field and enter the desired characters. You can also rename all three of them.
- Press the **Rename** field. The display responds with:



● Delete

This function allows you to delete the selected song from the SmartMedia card.

- Check the name of the song. If you selected the wrong song, press **Back to SongList** and correct your selection.
- Press the **Delete** field. Deleting a song cannot be undone, which is why the following question is now displayed:



YES deletes the song file.

NO leaves the file intact and takes you back to the initial Song Finder page with the song list.

CANCEL leaves the file intact and takes you back to the Song Options page.

Note: If a song you delete here is assigned to a Chain step, an error message ("File not found") is displayed during playback of that Chain, and playback stops at that step. So be careful.

● Lyrics Mark

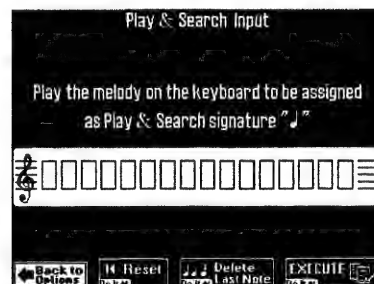
The **Insert** and **Remove** fields allow you to add an icon (Insert) to song files that contain Lyrics data for easy identification, or to delete (Remove) that icon again. Here is an example of what the icon looks like:



● P&S Input

You can also add a musical phrase to your songs if you wish to take advantage of the Play & Search facility. See page 16 for how to use that facility in a real-life situation. Here's how to program the phrase:

- Press the **Options** field.
- Press the **P&S Input** field.



- Play the notes of the most characteristic theme (the one you'll be most likely to play when using Play & Search for locating this song).

The key and rhythm are of little importance. (You must get the intervals right, though!) The note boxes will display a quarter note for every note you played. Five "note boxes" thus mean that you played five notes.

- If you make a mistake, proceed as follows to correct it:

Press the **Delete Last Note** field if you only wish to correct the last note you entered.

Press **Reset** to erase all notes you have played so far. Then play the notes again.

- (5) Press the **EXECUTE** field to save this information to SmartMedia card.



Songs for which there is Play & Search information are flagged with a note symbol (J) to the left of their names.

Note: The Play & Search function is Database information that is not part of the songs themselves. It resides in a different area on the SmartMedia card.

Editing an Index

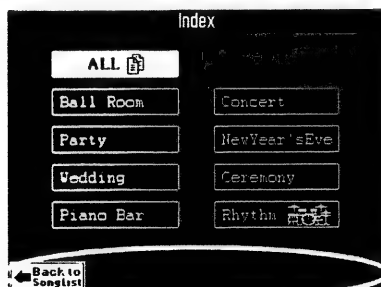
All songs on the supplied SmartMedia card are already assigned to one of the eight categories. You can change those assignments and even edit the Index names. Furthermore, you can copy an Index entry (along with all its song assignments) to a different entry.

- (1) Press the **SONG FINDER** button.



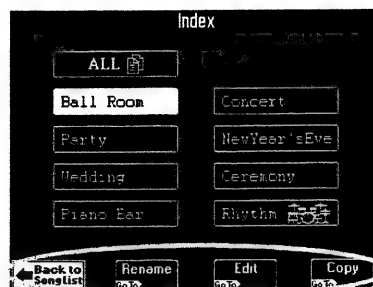
You can also press the **SONG** field in the upper left corner of the display (if available) to select songs.

- (2) Press the **SMART MEDIA** field in the upper right corner.
- (3) Press the **index** field in the top left corner. If the **ALL** field is currently selected, the display looks as follows:



The Index Edit functions are only available for "real" Index categories, so...

- (4) Press the field of the Index category you wish to edit.

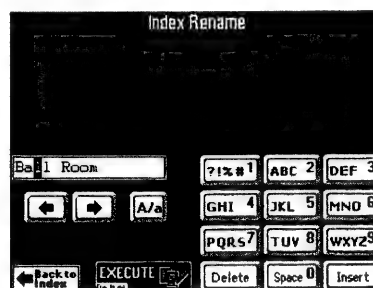


- (5) Select the edit function you need by pressing its field:

● Rename

This function allows you to change the name of the selected Index.

- Press the **Rename** field.



- Enter the new name (16 characters). See "Entering characters" (p. 71).
- Press the **EXECUTE** field to confirm the new name.



● Edit

This function allows you to assign the desired songs to the selected Index (or to remove existing song assignments).

- After performing step (4) above, press the **Edit** field.



- Use the **Finder**, **Song Name**, **Author**, and **Genre** fields to locate the desired file. See page 71.
- Press the fields of all songs you wish to assign to the selected Index category ("Ball Room" in the above example). Selected songs are displayed on a white background.
To remove a song from the selected category, press its white field, so that it turns white.
- If necessary, use the **←** **→** fields to go to previous or subsequent list pages.
- Press **Back to Index** to confirm your changes and return to the previous page. Press **EXIT** to return to the master page and to cancel your changes (which means that the assignments you have just changed will be lost).

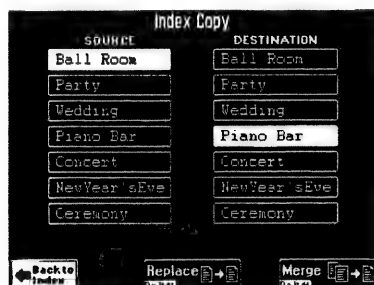
Note: After 50 modifications (established/defeated assignments), the DisCover 5 performs an automatic confirmation (like when you press the **Back to Index** field).

● Copy

This function allows you to copy one Index category (along with all the song assignments) to a another category. You could take advantage of this for merging two categories so as to free up one category for new assignments.

Note: There are eight Index categories in all. You cannot create additional categories.

- After performing step (4) above, press the **Copy** field.



- In the left column (SOURCE), press the field whose assignments you wish to copy to another Index category.
- In the right column (DESTINATIONS), press the field of the index category you wish to copy the assignments to.
Note: For safety reasons, the **Rhythm** category cannot be edited here.
- Now select the method used for copying the song assignments:
Press the **Replace** field if the assignments of the DESTINATIONS Index should be erased and replaced by the entries of the selected SOURCE field.

Press **Merge** if the song assignments of the SOURCE category should be added to the assignments of the DESTINATIONS Index. This means that the DESTINATIONS category will contain more assignments than before.

Your command is briefly confirmed by the display:



Note: No song files are copied during this operation.

- (6) Press the **Back to Index** field to return to the Index page.

The message "Executing" appears.

Note: Press the **EXIT** button to return to the master page and cancel your changes.

Song Chain function

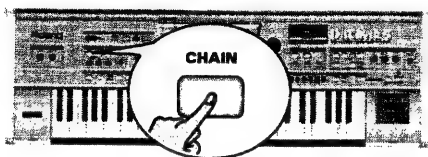
The Chain function allows you to prepare play lists of all the songs you want to use during a performance. The advantage of working with song chains is that you do not need to select files between songs.

Programming Song Chains

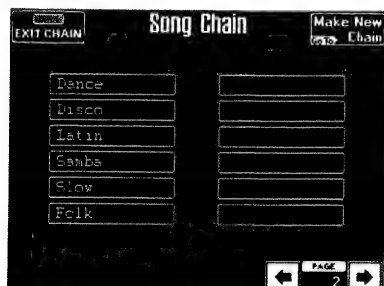
- (1) Insert the SmartMedia™ card that contains the desired songs into the slot.

Note: The Chain function is only available for songs on SmartMedia card – and only for one such card at a time. You may therefore have to copy all desired songs to that card before proceeding. See page 109 for details.

- (2) Press the **[CHAIN]** button.

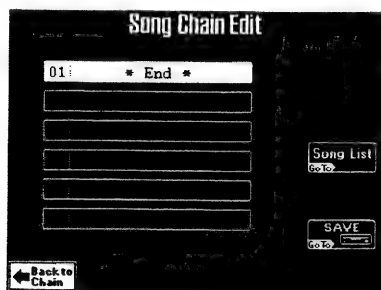


The display looks more or less as follows:



The long fields refer to the names of the Song Chains already available on the inserted SmartMedia card.

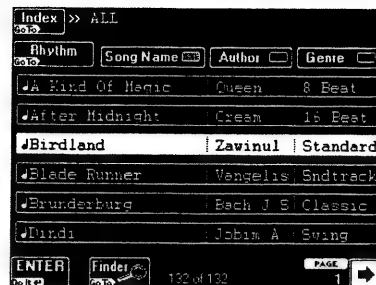
- (3) Press the **[Make New Chain]** field in the upper right corner.



You have just created a new Chain. Chains consist of "steps" (up to 99) to which you can assign one song each.

To assign a song to the first step, which is already selected:

- (4) Press the **[Song List]** field.



- (5) Locate the song you wish to assign to step 01.
 - If it is already displayed, continue with step (6) below.
 - If it is not yet displayed, use the **[←]** **[→]** fields in the lower right of the display to change pages.
 - You can also use the following fields for narrowing down your search if you are overwhelmed by the number of songs (and pages you need to scroll): **[Index]**, **[Song Name]**, **[Author]**, **[Genre]**, and **[Finder]**. See page 71.
- (6) Select the song you wish to assign by pressing its field (so that it is displayed in white).
- (7) Press the **[ENTER]** field.

This takes you back to the following page. The song is assigned to step 01, and step 02 becomes the last one of your chain (*End*):



The **[02 *End*]** field is selected automatically, so you can assign a song to it right away.

- (8) Repeat steps (4)~(7) above to assign a song to this step.

After assigning a song to step 06, the *End* message automatically jumps to the first field on the next page (step 07).
- (9) Continue assigning songs to new steps until your chain is complete.

- (10) After compiling your chain, press the **Save** field.



- (11) Enter a name (up to 12 characters).
See p. 29 for how to enter names.

Editing Chains

If, while programming or using a chain, you notice that one song is missing from your play list, or if you decide not to use a given song after all, you need to edit your Song Chain. Steps (1)~(3) below are only necessary if you want to edit a different chain than the one you have just programmed.

- (1) Press the **CHAIN** button until the Song Chain page appears.
- (2) Press the field of the chain you wish to edit. Depending on the number of chains already present on your SmartMedia card, you may have to use the **←** **→** fields for changing pages.

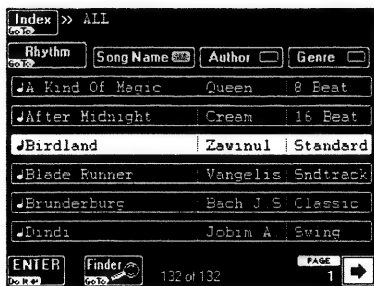


- (3) Press the **Edit** field.
- (4) Proceed as follows for editing your chain:

● Inserting Chain steps

To add a step and assign a song to it, select the step that should follow your new step, then press the **Insert** field. (Example: to insert a step before step 04, press the **04** field.)

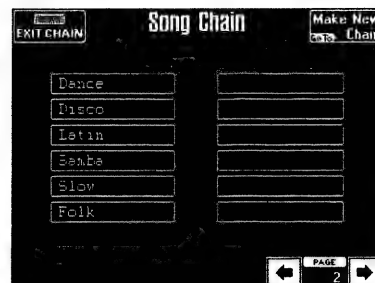
This takes you to the following display page:



See steps (5) and (6) above for how to assign a song to the newly inserted step.

- (12) Press the **EXECUTE** field to save your chain to SmartMedia card.

The display now shows a confirmation message and then returns to the Song Chain page.



● Deleting steps

On the Song Chain Edit page (see left), select the step you wish to delete and press the **Remove** field.

All subsequent steps now move up one entry. Example: if you delete step 04 of a chain that contains 10 steps, step 05 becomes 04, step 06 becomes 05, etc.

- (5) Press the **Save** field to save your edited chain.



Note: By pressing the **Back to Edit** field or the **EXIT** button, you not only leave this page, but you also delete any changes you have made up to that point.

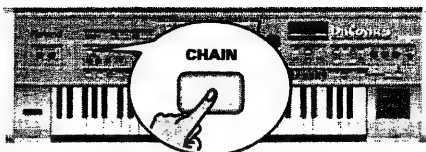
● Clear ALL Steps

The Song Chain Edit page has a **Clear ALL Steps** field you can use to remove all steps of the currently selected Chain. In effect, this means that only the name is preserved, while the Chain can/must be programmed again.

Using Song Chains

Here's how songs chains can be used for your performances:

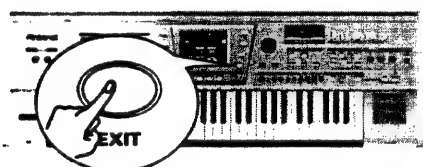
- (1) Insert the SmartMedia™ card that contains the chain (and songs) you need into the slot.
- (2) Press the **CHAIN** button.



You can release it as soon as the display looks more or less as follows:

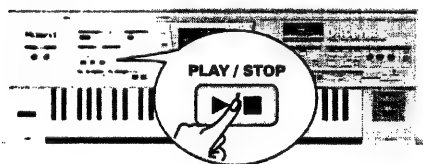


- (3) Press the field that corresponds to the chain you want to use.
Use the **◀ ▶** fields to move to the previous or next page of song chains (if available and necessary)
- (4) Press the **EXIT** button to return to the main page.



The **CHAIN** button now lights to indicate that the Song Chain function is active.

- (5) Press the **▶/■** button to start playback of your chain.



At the end of the first song step, the next song is selected automatically, if the **NEXT SONG** button lights. (If you stop playback halfway into the song, then start it again, the next step is played back.)

If the **NEXT SONG** button does not light, playback stops at the end of the current step, the next step is loaded, but playback needs to be started using the **▶/■** button. (If you stop playback halfway into the song, then start it again, playback continues from the place where you stopped it.)

The two fields that appear on the main page during chain playback allow you to navigate your chain. While the **CHAIN** button lights, there are indeed two more fields:



Use the **◀◀ ▶▶** field to select the previous step, and **▶▶ ▶▶** to select the next step. If you do so while playback is running, the previous or next song will be played back as soon as the current song is finished.

Note: The MARK JUMP buttons are also available during Song Chain playback, so feel free to use them (see p. 17).

- (6) Press **▶/■** again to continue with the next step.
- (7) To switch off the Song Chain function, press the **CHAIN** button and the **EXIT CHAIN** field (upper left; the **CHAIN** button goes dark). Selecting another (single) song via the Song Finder will also deactivate the Chain function.

Managing Song Chains

Song Chains can be renamed and deleted.

- (1) Insert the SmartMedia™ card that contains the chain you wish to rename or delete into the slot.

- (2) Press the **[CHAIN]** button.

The display looks more or less as follows:

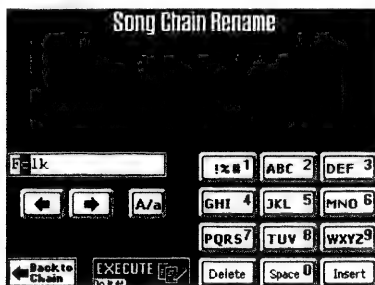


- (3) Press the field that corresponds to the chain you need.

Use the **[←]** **[→]** fields to move to the previous or next page of song chains (if available and necessary).

●Renaming a chain

To change the name of the selected chain, press the **[Rename]** field.

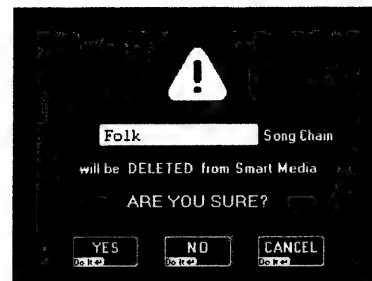


Enter the desired characters (page 29) and press the **[Execute]** field. After a brief confirmation, the display returns to the Song Chain page.

Note: You do not need to save a chain after renaming it: this change applies to the file on SmartMedia card.

●Deleting a chain from SmartMedia card

See steps (1)~(3) above, then press the **[Delete]** field. As this may ruin your work, you need to confirm this command:



You have three options here. Be aware that a deleted chain cannot be recalled.

[YES] deletes the chain file (but not the Standard MIDI Files it refers to).

[NO] leaves the chain intact and takes you back to the main page.

[CANCEL] leaves the chain intact and takes you back to the Song Chain page, where you could select another chain to be deleted.

Note: Even if you delete the selected chain, this "only" disposes of the play list. The Standard MIDI Files assigned to the chain are not deleted and can thus be used in isolation, or assigned to new/other chains.

9. Working with User Programs

The Discover 5 is equipped with 128 User Program memories that allow you to store almost all settings (or registrations) you make on the front panel and the various display pages. Additional registrations can be loaded directly from SmartMedia card and used right away.

Before taking a closer look at these User Programs, there is one thing we have to point out: all settings related to MIDI must be written to a MIDI Set (page 103).

MIDI settings are not saved to a User Program. The reason for this is simple: You probably need a lot more memories for your songs than you do for your MIDI gear. Writing the MIDI settings to a User Program would slow down the loading process.

Note: It is perfectly possible to link a MIDI Set to a User Program, so that the User Program in question also recalls the linked MIDI Set (page 85).

Writing your settings to a User Program

It is a good idea to memorize your settings frequently even if you still need to do some touching up afterwards.

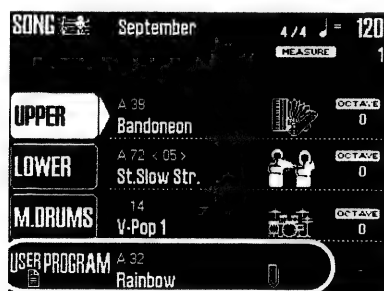
Those intermediary saves allow you to return to the previous stage whenever you do not like your last modifications. Try to use the User Programs as "recall buffers" to be able to return to the previously edited settings, discarding only the latest modifications.

Save your settings after...

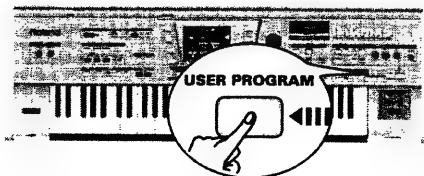
- ...editing the Vocal Harmonizer parameters;
- ...selecting Tones for the Keyboard parts;
- ...editing the Mixer settings (including the effects);
- ...defining the D Beam and Footswitch functions.

That way, subsequent modifications can be undone by loading the "provisional" User Program settings you do not want to lose.

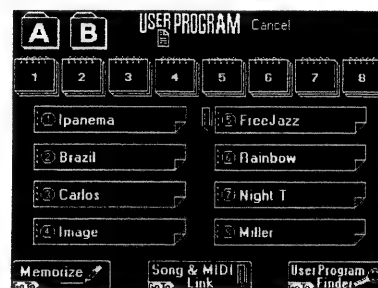
- (1) Press the **USER PROGRAM** field on the main page.



Alternative: press the **USER PROGRAM** button.



The display changes to:



- (2) Press the **MEMORIZE** field.



The field ("Cancel") next to the **A** and **B** fields refers to the name of the last settings you loaded.

- (3) Use the **A/B** and the numeric fields to select the Group, the bank and the memory number where you wish to write your settings.
- (4) Enter a name for your new User Program. See page 29. You only have to do this the first time you write (or "memorize") new settings to a User Program. You can also name your User Program at a later stage and then write it again under the same address.

This name is very important for taking advantage of the User Program Finder function (page 82).

Use a name that somehow summarizes the memory's contents. The name of the song you will use these settings for is probably the most explicit name you can think of.

It is perfectly possible to program several User Programs for one song. Selecting a User Program is a lot faster than calling up one of the DisCover 5's functions, modifying the settings, etc., while playing. You could program one User

Program for the first part of a song, another one for the bridge, and a third one for the closing section. Doing so allows you to "play" with the effect settings of the Keyboard parts, for example.

(5) Press the **EXECUTE** field.

The display confirms that the settings have been written to the selected memory and returns to the page of step (1) above.

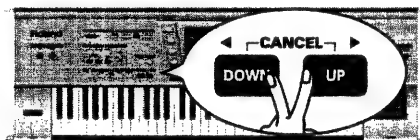
Selecting User Programs

Cancel

For song playback, or whenever you want to start anew, you should select the "Cancel" User Program. This allows you to leave the User Program mode (i.e. no longer work with the settings of the last User Program you may have loaded).

These settings can be recalled any time, i.e. even after selecting a "regular" User Program.

Simultaneously press User Program **DOWN** and **UP**.



Note: The "Cancel" memory is read-only. You cannot write data to it.

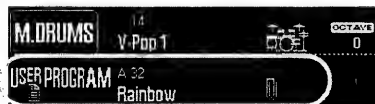
Note: Unless you specified a User Program for the Start-up function (page 85), you can also load the original Cancel settings by powering off your DisCover 5 and turning it back on again.

Using the numeric buttons and/or the display

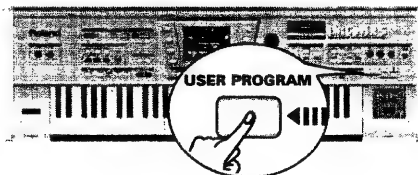
Selecting User Programs works exactly like selecting Tones: you can work with the TONE/USER PROGRAM section (after pressing **USER PROGRAM**), via the display, or both.

The display tracks your actions on the TONE/USER PROGRAM pad, so that you could start by pressing one of those buttons, and finish off via the display.

(1) Press the **USER PROGRAM** field on the main page.



Alternatively, press the **USER PROGRAM** button.



The display changes to:



There are two Groups with 8 banks each.

- (2) Press the **GROUP** button once or twice (so that the "A" or "B" indicator lights). You can also press the **A** or **B** field in the display.
- (3) Press a TONE/USER PROGRAM **1~8** button to select a bank within this Group. You can also press a **1~8** field in the display.
- (4) Press the field of the User Program you need. If you selected "Tone/User Program Select Mode" **1** (page 35), you can also press a TONE/USER PROGRAM **1~8** button to select a memory within this bank.

In that case, you can select the group (A or B) and the bank (1~8) a little ahead of the song part where you want the new settings to take

effect. Only when you specify the User Program number will the corresponding settings be loaded.

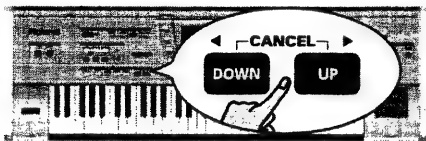
Sometimes, an **asterisk (*)** is displayed. This happens when you change a parameter setting after recalling a User Program to alert you to

the fact that the current settings no longer correspond to the ones you recalled. If you like them better than the original settings, you must write them again. See page 80.

Selecting User Programs with **DOWN** **UP**

The following method is especially useful if you programmed two or more User Programs for a song or if the User Program sequence corresponds exactly to the song sequence you are about to play (i.e. settings of the first song or song part in memory A11, settings of the second song or song part in A12, etc.).

Pressing **DOWN** or **UP** immediately selects the preceding or following User Program.



UP Selects the following User Program (for example A13, if you selected A12 before pressing this button).

DOWN Selects the preceding User Program (for example A11 if you selected A12 before pressing this button).

Note: If you press **UP** after selecting A88, your DisCover 5 will call up B11. Likewise, if you press **DOWN** after selecting B11, your DisCover 5 will call up A88, and so on.

Note: User Programs can also be selected using an optional footswitch connected to the FOOT SWITCH socket on the rear panel. See "User Program Up" (p. 43).

Finder: selecting User Programs on SmartMedia card

Your DisCover 5 also allows you to directly load any User Program from SmartMedia card, which is just as fast as working with internal User Programs. The supplied card already contains 128 such User Programs.

The User Program Finder function is also available for your own User Programs, but only after you saved them to SmartMedia card. See page 106. By doing that, you actually save a User Program "set" that contains the settings of all 128 internal User Program memories. You cannot save individual User Programs to SmartMedia card (or floppy disk). But you **can** load just one User Program from such a set – provided that set resides on SmartMedia card.

Such a User Program then resides in the "Cancel" memory (a buffer) and will be overwritten as soon as you select another internal or external User Program. You could, however, decide to write it to an internal memory. This function can also be used for creating "best of" compilations from various User Program sets.

- (1) Press the **USER PROGRAM** field on the main page, or the **USER PROGRAM** button in the TONE/USER PROGRAM section.

The display changes to:



- (2) Insert the SmartMedia card with the settings you need into the slot.

Note: This function is not available for floppy disks. You may thus have to copy your User Program sets from floppy to your SmartMedia card. See page 109 for details.

Note: The DisCover 5 does not support User Programs of the Roland VA, E, KR, or EM series.

- (3) Press the **User Program Finder** field.

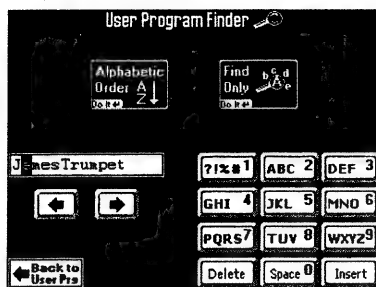


- (4) If available, press the field of the User Program you need.

If the name is not displayed, use **←** or **→** to go to a different page, then press the field of the settings you are interested in.

This page lists the names of all individual User Programs contained in the various sets on the inserted SmartMedia card.

- To quickly locate the desired User Program...
- (5) Press the **Finder** field.



- (6) Enter only as many characters as you think are necessary to find the User Program you are after.

The character string you enter can be used in two ways (see below).

- Use the **←** and **→** fields to select the position for which you wish to enter a new character.
- Use the alphanumeric keypad in the right corner to enter the desired characters. This keypad works exactly like the keypad of a cellphone: you may have to press an alphanumeric field several times to select the desired character or number.

Note: There's no **A/a** field here, because the Finder makes no distinction between upper- and lower-case letters.

- The **Delete** field allows you to delete the inverted character.
- Press **Space** to insert a blank (or the number "0").

- If you forgot to insert a character, use **←** or **→** to select the position where the missing character should be inserted. Then press **Insert**, followed by the character you wish to insert.

- (7) Decide how the Finder should look for the files:

- Press the **Alphabetic Order** field to search for all entries that start with the characters you entered ("BEA", for example). Names that match the specified criteria will be displayed at the top of the list.
- Press the **Find Only** field to have the DisCover 5 search for names that contain the supplied information. (This would allow you to also locate a file called "Raggabeat" if you entered "BEA".)

If the following message appears, the DisCover 5 was unable to locate User Programs that match the search criteria:



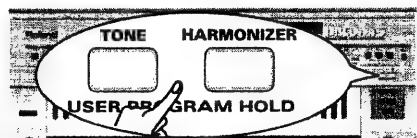
- (8) Press the field of the User Program you need and start playing.

If you want all files to be displayed again, press the **List ALL** field.

Selectively loading User Program settings (User Program Hold)

Your DisCover 5 can keep certain settings of the previous User Program while selecting another User Program. That way, you can go on playing with the last Tones you selected and/or Harmonizer settings you made.

- (1) Press the **USER PROGRAM** button or the field of the same name in the display.
- (2) If you need a different User Program (whose settings should be used), select it, otherwise...
- (3) Press the **USER PROGRAM HOLD TONE** or **HARMONIZER** button, depending on which settings you do **not** want to recall.



Press **TONE** to ignore Tone selection for the Keyboard parts when a different User Program is recalled.

Press **HARMONIZER** to ignore the various VOICE-FX, AUTO TUNE, etc. settings you have made. See "Editing the Vocal Harmonizer parts" (p. 61).


Note: You can also switch on (or off) both buttons, if you like.

Pressing one of these buttons without selecting a User Program afterwards has no effect. Only when you select another User Program will the selected filter (because that is what the User Program Hold buttons are) start working.

To once again load all settings of the new User Program, switch off the **USER PROGRAM HOLD** button that lights.


Automatic functions for User Programs

Song Link

This function means that, by recalling a User Program, you also prepare the song in question. Such songs reside on SmartMedia card, which means that it must be inserted, otherwise, this system won't work. All you need to do then, is hit the  button to start playback of that song.

Your DisCover 5 only memorizes the song name. If, at the time you recall such a User Program, that song is not available, the display will respond with:



Remove the SmartMedia card, and insert the proper card and select that User Program again. If you don't, the DisCover 5 will start playback of the previously loaded song when you press  again.

- (1) Press the **USER PROGRAM** field on the main page, or the **USER PROGRAM** button in the TONE/USER PROGRAM field.

The display changes to:

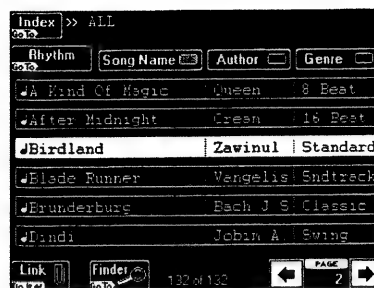


- (2) On the display page that appears now, press the **Song & MIDI Link** field.
- The display changes to:



- (3) Insert the SmartMedia card with the song you need into the slot.

- (4) Press the **Song List** field to jump to the display page where you can select a song.



See "Locating files with the Song Finder" (p. 71). Bear in mind that the song data are not loaded into the User Program memory. You will have to insert the SmartMedia in question into the slot before recalling this User Program (otherwise, an error message is displayed and the song is not loaded).

If you are planning to save your User Programs to SmartMedia card and to use the User Program Finder function, the song must either already reside on the correct SmartMedia card, or you must copy it to that card at later stage. Links of User Programs selected via the Finder function will not work if the song is on one SmartMedia card, while the User Program is on another.

- (5) Press the **Link** field to establish the link to the song whose name appears on a white background. This takes you back to the "Song & MIDI Link" page. The name of the song appears in the "Song Name" field with a paper clip icon to its left.
 - (6) Press the **Delete Song Link** field to break the link if you no longer need it.
 - (7) Continue with the section below (MIDI Set Link), or press **Back to User Prg** to return to the page where you came from.
- Note:** Do not forget to write your User Program after changing these settings (page 80).

Linking a MIDI Set to a User Program

MIDI Sets are "User Programs for MIDI parameters". There are eight such memories (page 103).

If you regularly use the DisCover 5 in different MIDI environments (studio, live, band), preparing three MIDI Sets and linking them to the User Programs you usually use in the studio, on stage, etc., can be a time saver. In other situations, such a link could be **dangerous**, because it would reconfigure the DisCover 5's MIDI parameters without you actually knowing it.

- (1) Press the **USER PROGRAM** field on the main page, or the **USER PROGRAM** button in the TONE/USER PROGRAM field.
If you are still on the "Song & MIDI Link" page, skip to step (3) below.
- (2) On the display page that appears now, press the **Song & MIDI Link** field.

The display changes to:



- (3) Press a MIDI Set **1~8** field to select the desired MIDI Set.
To break the link to this MIDI Set, press its field again (all indicator icons must be dark).
Note: Do not forget to write your User Program after changing these settings (page 80).
- (4) Press **Back to User Prog** to return to the User Program selection page, or the **EXIT** button to return to the main page.

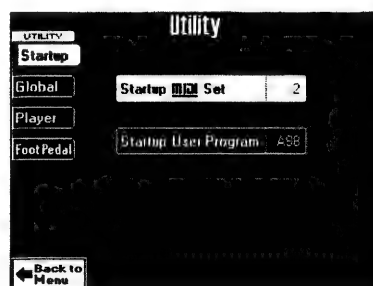
Startup User Program

Whenever you switch on the DisCover 5, it automatically selects the "Cancel" User Program (page 81). But maybe you prefer to be operational right away. In that case, tell the DisCover 5 which User Program it should recall whenever you switch it on:

- (1) Press the **MENU** button.



The display changes to:



- (3) Press the **Startup User Program** field so that it is displayed in white.
- (4) Use the **VALUE** dial to select the User Program to be recalled.
If you don't want any User Program to be recalled, select "Off".
Note: You can only select internal User Programs (A11~B88) here.
- (5) Press the **EXIT** button to return to the main page.

10. Song Makeup Tools

You already know how the Cover function works (page 19). It relies on presets for the following, more detailed, parameters with which you can customize playback of the currently selected song. Changes you perform here must be saved to disk or SmartMedia card if you want them to be permanent.



Before you begin...

- (1) Insert the SmartMedia card (or floppy disk) with the desired song into the slot (or drive), select the song, and press the button. This will load the first chunk of song data into the DisCover 5's buffer. Only then will you be able to edit the following settings.
- (2) Press the button again after a few measures. Though you can also edit the following settings while playback is running, selecting Tones/Drum Sets may become a bit confusing.

Instrument: selecting different sounds

If you do not agree with the instrumentation of a Standard MIDI File, use the INSTRUMENT parameters allow to select different sounds:

- (1) Press the **INSTRUMENT** button.



This page lists some sounds that are used by tracks 1~8. "Tracks" are in fact MIDI channels, and usually used to differentiate between the various parts of a song (drums, bass, guitar line, piano part, etc.).

Standard MIDI Files can contain data for up to 16 tracks (MIDI channels). Quite a few Standard MIDI Files use fewer tracks, but the following are almost always present (that is part of the "standard"):

- | | |
|----|---------------------------|
| 2 | Bass line (uses a "Tone") |
| 4 | Melody (uses a "Tone") |
| 10 | Drums (uses a "Drum Set") |

- (2) If the track you are interested in (9~16) is not listed, press the **Trk9~16** field.



Note: The MUTE messages within a Tone/Drum Set field mean that the passage in question (using that Tone/Drum Set) is not played. This needs to be set on one of the other SONG MAKEUP TOOLS pages (see below).

The fields that may (but do not necessarily) appear allow you to jump to other instances where a Tone/Drum Set change occurs.

Note that the Tone/Drum Set field graphics are displayed in chronological order within a track, but not in time. The "St. Slow Str." change (track 3) may therefore be located way behind the "Flugel Horn" (track 7) change, for example (see the illustration of step (1)).

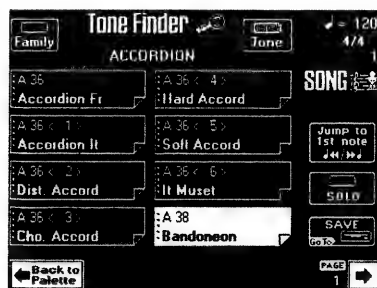
- (3) To switch a track on or off, press its **ON/OFF** field.
- (4) To select a different Tone (tracks 1~9, 11~16) or Drum Set (track 10):
 - Press the field of the Tone/Drum Set you wish to replace. (In the example of step (1), the "St. AcPiano 1" sound can be changed.)

- Use the TONE/USER PROGRAM buttons and the display to select a different sound, or press the **Tone Finder** field and use the Tone Finder function (page 33).

Note: If you work via the TONE/USER PROGRAM pad on the front panel (and forget to look at the display), be sure to also read the part about the **SAVE** field in the next or subsequent sections. To keep your changes, you must indeed save them to SmartMedia card or disk.

► Tone Finder for song parts

After pressing the **Tone Finder** field, the display looks as follows:



The main routine of selecting Tones or Drum Sets is identical to what you learned on page 33: first select a family, and then specify a Tone (or Drum Set) within that family.

Let's have a look at the new elements on this page.

Press the **Jump to 1st note** field to jump to the location where the Tone you are about to change is used. Playback starts automatically from that point. You can select another Tone (or Drum Set) while the song is playing. To return to that position, press **Jump to 1st note** again.

If you can barely hear the Tone/Drum Set, press the **SOLO** field (indicator icon must be displayed in white), then use **Jump to 1st note** to jump to the first note of that instrument. Then press **SOLO** again to switch this function off.

If you are happy with your new song instrumentation and wish to preserve it, press the **SAVE** field. The display changes to:



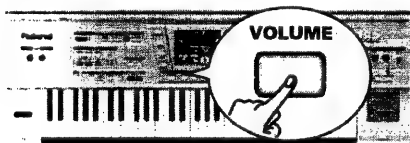
See step (7) and following on page 69 for how to save your song.

Note: If you also want to change the volume and other song settings (see below), there is no need to save the song just yet. The other SONG MAKEUP TOOLS pages also provide **SAVE** fields.

Volume: part balance

From this point onward, there are no more tracks, just instruments. Here, you work on a Tone/Drum Set level (some tracks may indeed use two or more sounds): if you think "the bass" is too loud, touch the corresponding field, and turn it down... It doesn't get any easier than that.

- (1) Press the **VOLUME** button.



The display changes to:



- (2) Press the field that corresponds to the Tone/Drum Set whose volume you wish to change (or use the **PREV** **NEXT** buttons to select it).

Parameter fields can also be selected by pressing them.

Note: If the name of the desired Tone/Drum Set is not currently displayed, use the **PREV** **NEXT** fields in the lower right corner to change pages.

- (3) Use the **VALUE** dial to set the volume. The volume settings of all instruments are displayed by means of a value.
- (4) Use the following fields to check your settings:

Press the **Jump to 1st note** field to jump to the first note of that instrument. Playback starts automatically from that point. You can also change the volume while the song is playing. To return to that position, press **Jump to 1st note** again.

If you can barely hear the instrument, press the **SOLO** field (indicator icon must be displayed in white), then use **Jump to 1st note**. To listen to all instruments again, press **SOLO** again to switch this function off.

- (5) Use the **[MUTE]** fields to switch off instruments you do not want to hear, and switch on those you do want to hear.

Please bear in mind that these **[MUTE]** fields apply to the instruments (Tones/Drum Set) – not to the entire track they belong to.

If the **[MUTE]** indicator "lights" **[MUTE]**, that sound is indicated as **[MUTE]** on the INSTRUMENT page.

Note: Most tracks only use one Tone/Drum Set, so that activating **[MUTE]** means that the track in question never sounds.

- (6) If you are happy with your changes and wish to preserve them, press the **[SAVE]** field. The display changes to:



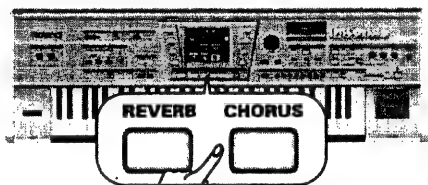
See step (7) and following on page 69 for how to save your song.

Note: If you also want to change other song settings, there is no need to save the song just yet. The other SONG MAKEUP TOOLS pages also provide **[SAVE]** buttons.

Reverb and Chorus: effect balance

On the following two pages, you can specify how strongly the instruments should be processed by the Reverb and/or Chorus effects. The effects parameters (kind of Reverb and Chorus, etc.) can be set on the Common page (see p. 94).

- (1) Press the **[REVERB]** or **[CHORUS]** button.



The display changes to:



...or:



Press the field that corresponds to the effect for which you wish to set the send level.

- (2) Press the field that corresponds to the instrument (Tone/Drum Set) whose send level you wish to change (or use the **[PREV]** **[NEXT]** buttons to select it).

The "send level" refers to the amount of the signal transmitted to the Reverb or Chorus effect – and hence to the strength (intensity) with which the instrument is processed.


Note: If the name of the instrument (Tone/Drum Set) name is not currently displayed, use the **[◀]** **[▶]** fields in the lower right corner to change pages.

- (3) Use the **[VALUE]** dial to set the send level. The send level settings of all instruments are displayed by means of a value.
- (4) Use the following fields to check your settings:

Press the **[Jump to 1st note]** field to jump to the first note of that instrument. Playback starts automatically. You can also change the setting while the song is playing. To return to that position, press **[Jump to 1st note]** again.

If you can barely hear the instrument, press the **[SOLO]** field (indicator icon must be displayed in white), then use **[Jump to 1st note]**. To return to all instruments, press **[SOLO]** again to switch this function off.

- (5) Use the **[MUTE]** fields to switch off instruments you do not want to hear, and switch on those you do want to hear. Please bear in mind that these **[MUTE]** fields apply to the instruments indicated by the Tone/Drum Set names – not to the entire track they belong to.

If the **MUTE** indicator "lights" , that passage is indicated as **MUTE** on the INSTRUMENT page.

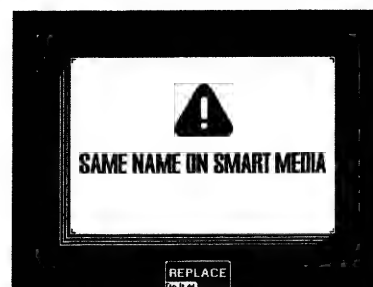
Note: Most tracks only use one Tone/Drum Set, so that activating **MUTE** means that the track in question never sounds.

- (6) If you are happy with your changes and wish to preserve them, press the **SAVE** field. The display changes to:



- (7) If necessary, change the song's name. You only need to do this if you want to preserve the original version. The edits you have just performed can only be read by the DisCover 5, and so are of little use to other sequencers or SMF players: they simply ignore it. So you might as well save the song under its original name. Besides, you can also save the song to a different card or disk.
- See page 29 for how to enter a different name.
- (8) Press the **SMART MEDIA** or **FLOPPY** field to select the Save destination.
- (9) Press the **EXECUTE** field.

If you selected the drive that contains the original version, the following message is displayed:



If you pressed the **FLOPPY** field, the message reads "SAME NAME ON DISK".

- Press the **REPLACE** field to overwrite the old version.

Press the **EXIT** button on the DisCover 5's front panel if you do not want to overwrite this song and return to the previous page. Then enter a different name (or select a different media).

If the song doesn't yet exist on the selected SmartMedia card or floppy disk, the data are saved, and the following message appears:

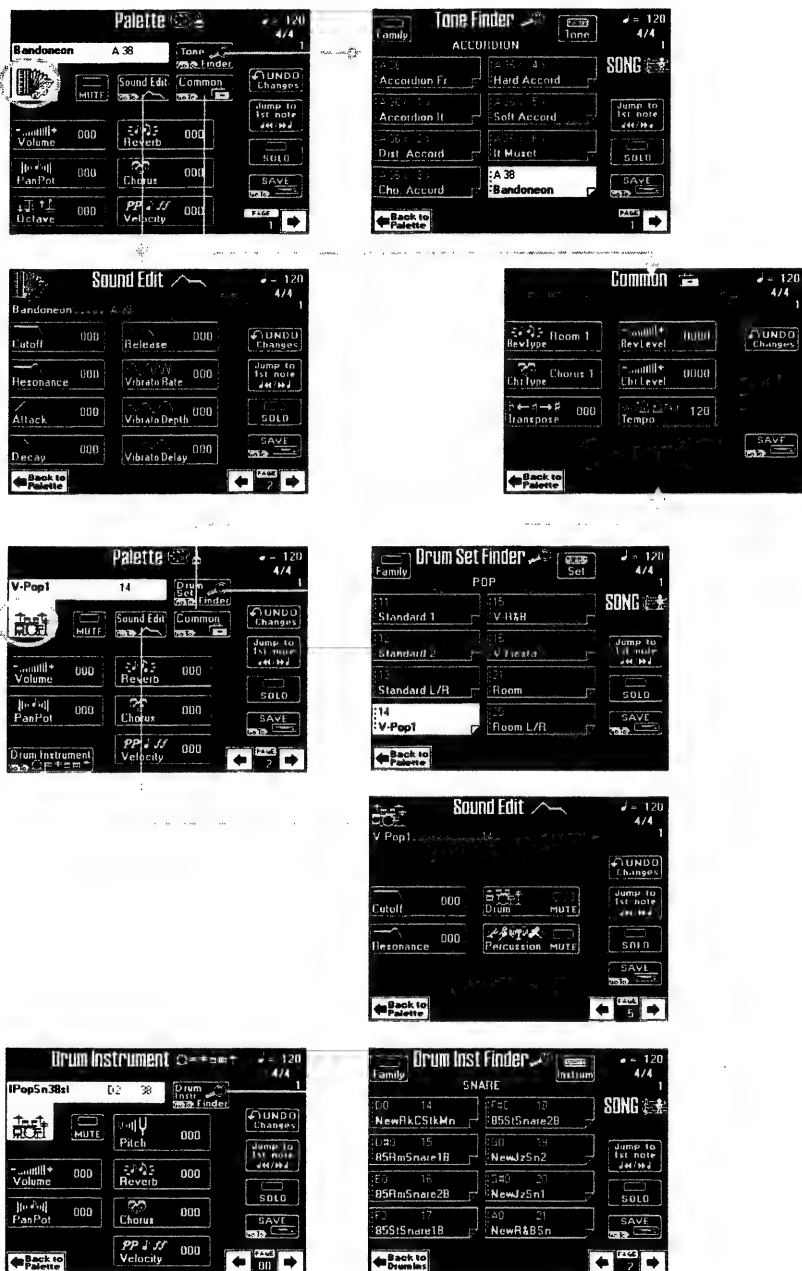


Note: If you also want to change other song settings, there is no need to save the song just yet. The other SONG MAKEUP TOOLS pages also provide **SAVE** buttons.

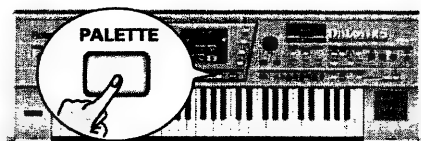
Palette: in-depth song editing

Now we are closing in on the "inner workings" of the instruments, with an overview of parameters also present on the VOLUME, REVERB, and CHORUS pages, while new parameters are added. For even more control, you can actually really "edit" the selected Tones or Drum Set, specify how the Reverb and Chorus effects should sound, and more...

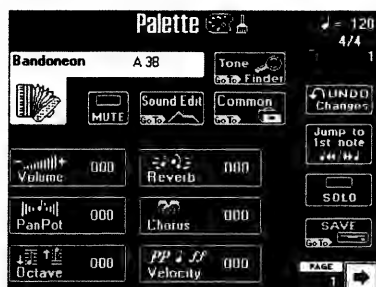
As the Palette environment is a little bit more complex, let's start with a general overview:



- (1) Press the **PALETTE** button.



The display changes to:

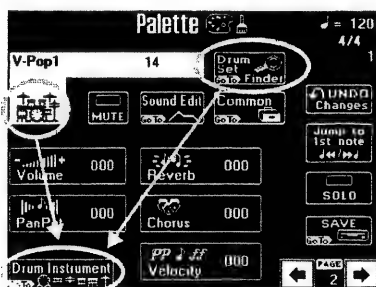


All modifications on this page and the related pages are SysEx data that alter the actual song data (without replacing them). Only the DisCover 5 can read these data. To other SMF players, the song will still be the original song, i.e. they will ignore these newly added SysEx data.

Most fields (**MUTE**, **Volume**, **Reverb**, **Chorus**, **Jump to 1st Note**, **SOLO**, **SAVE**) should look familiar. See the previous pages for details.

Here's what's new on this page.

- (2) Use the **←** **→** fields in the lower right corner to select the instrument you wish to edit. Each page indeed only displays the name of one Tone/Drum Set. If you select a Drum Set, the display changes to:



The **Octave** field is replaced by a **Drum Instrument** field. See below for details.

- (3) Press the big Tone/Drum Set field and use the **TONE/USER PROGRAM** buttons or the **Tone Finder** facility to select another Tone or Drum Set.
You can also use the **PREV** **NEXT** buttons to select this field.
- (4) Use the **PREV** and **NEXT** buttons to select the parameter you wish to edit, and set the desired value with the **VALUE** dial.

- (5) Press **UNDO Changes** to reset the parameter of the currently selected field to its saved setting.

Example: If you change the Reverb parameter (set to "40" within the Standard MIDI File) to "94", pressing **UNDO Changes** recalls the value "40".

Note: The "saved setting" referred to above can mean two things: the original value contained in the Standard MIDI File (if you haven't yet used the **SAVE** field), or the last setting you saved yourself (via the **SAVE** field).

Parameters:

PanPot Use this parameter to set the stereo placement of the selected instrument. Negative values shift the instrument towards the left, "0" means "no change". Positive values shift the instrument towards the right.

Note: In the case of Drum Sets, this setting applies to all drum/percussion instruments. There is also a parameter that can be set for certain drum instruments. See page 93.

Octave (Only for Tones) Use this parameter to transpose the selected instrument up or down by up to 4 octaves if you think it is too high or too low.

Velocity This parameter allows you to modify the velocity range of the instrument in question. "0" means that the recorded values are left untouched, negative values reduce all velocity values by the same amount (leaving differences between notes intact), while positive settings shift all velocity values in a positive direction.

Drum Instrument (Only for Drums Sets) Calls up the display page of the same name. This is a field you need to press (it cannot be activated or selected with the **PREV** **NEXT** buttons). See page 93 for details.

Note: All fields in the DisCover 5's display labelled "Go To", "Do It", and "Back to..." need to be pressed.

Drum Instrument is part of those fields.

Note: See page 94 for details about the **Common** field.

► **Sound Edit for Tones**

If the uppermost field to the right of the Tone/Drum Set field reads **Tone Finder**, you have selected a Tone page.



In that case, pressing the **Sound Edit** field takes you to the following page where you can make more refined changes to the selected Tone:



- (1) Use the **PREV** and **NEXT** buttons to select the parameter you wish to edit, and set the desired value with the **VALUE** dial. Parameter fields can also be selected by pressing them.

■ **Cutoff:** This filter parameter allows you to make the selected sound darker or brighter. Positive Cutoff settings mean that more overtones are allowed to pass, so that the sound becomes brighter. On page 59 you will find a graphic.

Note: For some sounds, positive (+) Cutoff settings may cause no noticeable change, because the pre-programmed Cutoff parameter is already set to its maximum value.

■ **Resonance:** This is a parameter one invariably associates with a synthesizer. When the Resonance value is increased, the overtones in the area of the cutoff frequency will be emphasized, creating a sound with a strong character.

Note: For some sounds, negative (–) Resonance settings may produce no noticeable change because the Resonance is already set to the minimum value.

The following parameters allow you to set the Tone's "envelope". See page 60 for details.

■ **Attack:** This parameter adjusts the onset of the sound. Negative values speed up the attack, so that the sound becomes more aggressive.

■ **Decay:** This parameter adjusts the time over which the sound will fall from the highest point of the attack down to the sustain level.

Note: Percussive sounds usually have a Sustain level of "0". Piano and guitar sounds are in this category. Holding the notes for a long time will thus have little effect on their duration.

■ **Release:** This parameter adjusts the time over which the sound will decay after the note is released until it is no longer heard. The cutoff frequency also falls according to this setting.

Use the following three parameters if you think the part in question has too much (or could use a little more) vibrato.

Note: Some "V" Tones contain natural (sampled) vibrato whose depth or speed cannot be changed.

■ **Vibrato Rate:** This parameter adjusts the speed of the pitch modulation. Positive (+) settings make the preset pitch modulation faster, and negative (–) settings make it slower.

■ **Vibrato Depth:** Sets the intensity of the pitch modulation. Positive (+) settings mean that the "wobble" becomes more prominent, while negative (–) settings make it shallower.

■ **Vibrato Delay:** This parameter adjusts the time required for the vibrato effect to begin. Positive (+) settings increase the delay, and negative settings shorten it.

- (2) Press the **Back to Palette** field to return to the Palette page.

If necessary, press the **SAVE** field to save your settings.

► **Sound Edit for Drum Sets**

If the uppermost field to the right of the Tone/Drum Set field reads **Drum Set Finder**, you have selected a Drum Set page.

In that case, pressing the **Sound Edit** field takes you to the following page where you can edit the Drum Set as a whole.



- (1) Use the **PREV** and **NEXT** buttons to select the parameter you wish to edit, and set the desired value with the **VALUE** dial. Parameter fields can also be selected by pressing them.

■ **Cutoff:** Allows you to make the Drum Set (all instruments) brighter (positive values) or darker (negative values). The further this value is set in the negative direction, the fewer overtones will be allowed to pass, and the sound will become softer (darker).

■ **Resonance:** This parameter allows you to add a "synthetic" character to your Drum Sets (choose a positive value), or to make it sound more natural.

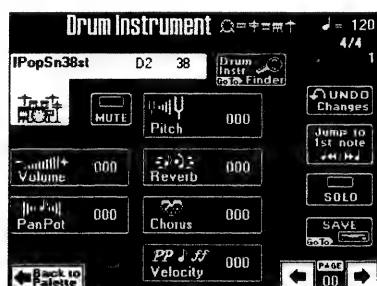
- (2) Use the **Drum MUTE** field to suppress (or add) the drum sounds.

- (3) Use the **Percussion MUTE** field to suppress (or add) the percussion sounds.
- (4) Press the **Back to Palette** field to return to the Palette page.
If necessary, press the **SAVE** field to save your settings.

► If you press **Drum Instrument** on the Palette page

If the uppermost field to the right of the Tone/Drum Set field reads **Drum Set Finder**, you have selected a Drum Set page.

In that case, pressing the **Drum Instrument** field takes you to the following page where you can make more refined changes for certain instruments of the selected Drum Set:

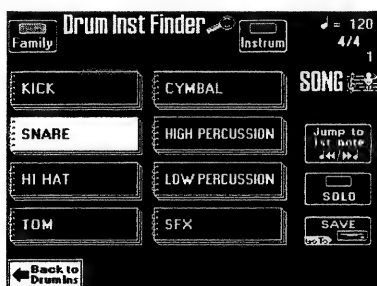


The eligible instruments and corresponding note numbers are:

C#2/37 Side Stick D2/38 Snare 1,
E2/40 Snare 2 F2/41 Low Tom 2,
E3/52 Chinese Cymbal G#3/56 Cowbell,
A3/57 Crash Cymbal 2 F4/65 High Timbale.

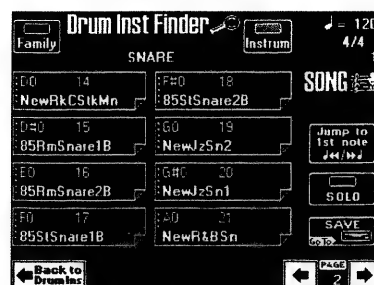
Note: The names of the drum/percussion sounds depend on the currently selected Drum Set. The sounds are usually similar in nature, however.

- (1) Use the **Family** and **Instrument** fields to select the drum instrument you want to edit.
- (2) Press the **MUTE** field to switch the instrument in question on/off.
- (3) To select a different sound:
 - Press the **Drum Instr Finder** field.



- Press **Family** and select an instrument family (snare drums, cymbals, etc.).

- Press the **Instrument** field, and use the **Left** and **Right** buttons to make your selection.

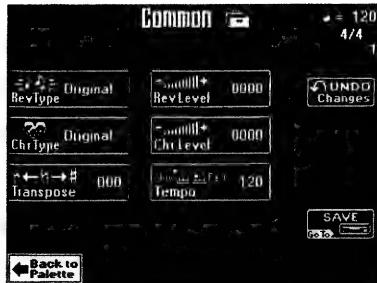


Note: Please be aware that you can only select sounds from the currently active Drum Set.

- Press **Back to DrumInst** to return to the Drum Instrument page.
- (4) Use the **PREV** and **NEXT** buttons to select the remaining parameters, and set the desired values with the **VALUE** dial.
Parameter fields can also be selected by pressing them.
 - **Volume:** Use this parameter to set the volume of the selected drum instrument.
 - **PanPot:** Use this parameter to set the stereo placement of the selected drum instrument. "0" means "no change", negative values shift the instrument towards the left, and positive values shift it towards the right.
 - **Pitch:** Use this parameter to tune the selected drum instrument higher or lower. The main reason for doing so would be to create a "special effect" or to make a snare sound, etc., slightly snappier. "0" means that the pitch is left unchanged.
 - **Reverb & Chorus:** Use these parameters to set the Reverb or Chorus send level. The effects themselves can be edited via the Common page (see below).
 - **Velocity:** This parameter allows you to modify the velocity range of the drum instrument in question. "0" means that the recorded values are left untouched, a negative setting reduces all velocity values by the same amount (leaving variations intact), while a positive setting shifts all velocity values in a positive direction.
 - (5) Press the **Back to Palette** field to return to the Palette page.
If necessary, press the **SAVE** field to save your settings.

► If you press **Common** on the Palette page

After pressing the **Common** field on the Palette page, the display looks as follows. The parameters on this page apply to the entire song – and do therefore not depend on whether you selected a Tone or Drum Set.



- (1) Use the **PREV** and **NEXT** buttons to select the parameter you wish to edit, and set the desired value with the **VALUE** dial. Parameter fields can also be selected by pressing them.

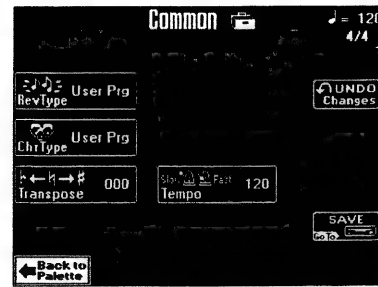
Rev Type This parameter allows you to specify what kind of Reverb effect you need. The available Reverb types are:

Room1,	These types simulate the Reverb characteristics of a room. The higher the number (1, 2, or 3), the "bigger" the room becomes.
Room2,	
Room3	
Hall1,	These types simulate the Reverb of a small (1) or large (2) concert hall and thus sound much "bigger" than the Room types above.
Hall2	
Plate	Digital simulation of a metal plate that is sometimes used for creating Reverb effects. Works well for percussive sounds.
Delay	A Delay effect (no Reverb). Works a lot like an echo effect and thus repeats the sounds.
Pan Delay	This is a stereo version of the above Delay effect. It creates repetitions that alternate between the left and right channels.

Note: Selecting one of the above also means that the Keyboard parts will use this new effect type (see p. 50).

The **Original** setting means that the song uses its own (programmed) Reverb settings.

You can also select **User Prg**, in which case the display changes as follows:



Selecting "User Prg" means that you want the song to use the effect settings contained in the last User Program you recalled (page 81), in which case, there is obviously no need to change the level setting.

Chr Type Chorus broadens the spatial image of the sound and creates a stereo impression. You can choose from 8 types of Chorus.

Chorus 1~4	These are conventional Chorus effects that add spaciousness and depth to the sound.
Fb Chorus	This type produces a Flanger-like effect and has a soft sound.
Flanger	This is an effect that sounds somewhat like a jet airplane taking off and landing.
Delay	This is a Delay (echo effect) with a short Delay time.
Pan Delay	This is a short Delay with many repeats that alternate between the left and right channels.

Note: Selecting one of the above also means that the Keyboard parts will use this new effect type (see p. 50).

Original means that the song uses its own (programmed) Chorus settings.

You can also select **User Prg**, in which case the display changes, because you chose to work with the Chorus settings currently in effect for the last User Program you selected.

Transpose This parameter allows you to transpose all song parts (except the drums) up to 12 semitones (1 octave) up or down. This value will be written to the song data and used every time you play back this song. Working with the **SINGER KEY** facility (page 28) or the **TRANSPOSER** buttons (page 38) yields a similar result, so choose whichever is more convenient.

Rev Level & **Chr Level** These parameters are not available if **Rev Type** (or **Chr Type**) is set to "User Prg".

When they are available, they allow you to modify the output level of the Reverb (or Chorus) processor.

Tempo Allows you to change the song's tempo (♩ = 20~250) if you do not agree with the preset song tempo.

- (2) Press the **Back to Palette** field to return to the Palette page.
If necessary, press the **SAVE** field to save your settings. See page 89.

11. Editing Lyrics

Your DisCover 5 contains functions that allow you to add Lyrics to a Standard MIDI File that does not contain them. It is also possible to edit the Lyrics data of Standard MIDI Files that conform to the Tune 1000 format (other formats cannot be edited on the DisCover 5).

This may come in handy when you keep forgetting the words of a song you wish to use for your performances and want them to be included in the song file.

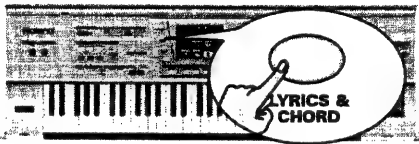
Note: The DisCover 5 only allows you to link ("synchronize") Lyrics data to the note messages of the loaded Standard MIDI File. The text data proper must be entered on a Windows-compatible PC (or a Mac and saved as .TXT data for Windows). See right for the supported characters.

```
1"#$%&'()*+,-.0123456789:; =?@ABCDEFGHIJKLMNOPS
2QRSTUVWXYZ{|}_`abcdefghijklmnopqrstuvwxyz
3tuvwxyz{|}~<=>fghijklmnopqrstu
4vwxyz{|}~<=>fghijklmnopqrstu
5vwxyz{|}~<=>fghijklmnopqrstu
6vwxyz{|}~<=>fghijklmnopqrstu
7vwxyz{|}~<=>fghijklmnopqrstu
8vwxyz{|}~<=>fghijklmnopqrstu
9vwxyz{|}~<=>fghijklmnopqrstu
0vwxyz{|}~<=>fghijklmnopqrstu
```

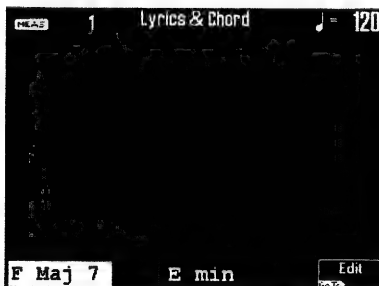
Adding Lyrics to a song

Here's a step-by-step tour of how to add Lyrics data to a Standard MIDI File:

- (1) Prepare the text file with the lyrics you wish to associate with a given song.
Use a word processor program on your computer, taking care to type a return after every line or word you wish to synchronize separately. The synchronization function (see below) always works with entire lines of text (i.e. until the following return). In any case, no line should contain more than 28 characters.
Export the file as .TXT file and save it to a floppy.
- (2) Load the song you wish to add Lyrics to.
See page 16.
- (3) Press the **LYRICS&CHORD** button.



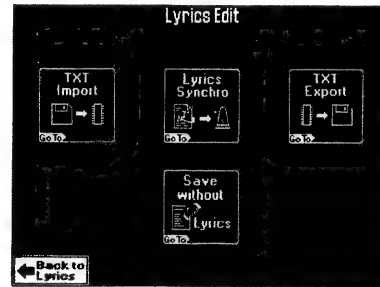
The display changes to:



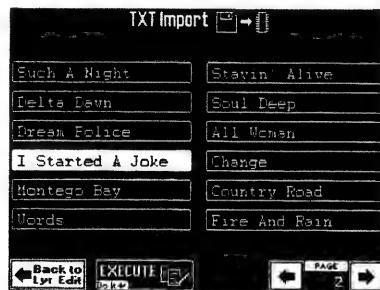
If the song already contains Lyrics data that can be edited, the first few lines are displayed.



- (4) Press the **Edit** field.

This is only possible while song playback is stopped. So be sure to stop playback before pressing **[Edit]**. Otherwise a "CAN'T EXECUTE" error message is displayed.

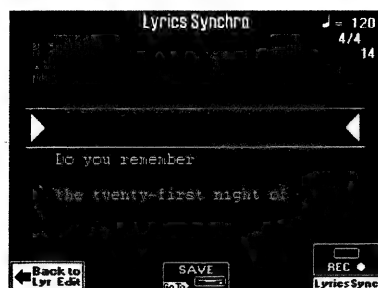


- (5) Now, we're going to import the text file you created earlier:
- (6) Insert the floppy disk that contains the text file you wish to associate with the Standard MIDI File in the DisCover 5's RAM memory.
- (7) Press the **TEXT Import** field.



- (8) Press the field that contains the name of the desired file.
If you don't see the desired file name, use   to select another group of 14 files. (If you still can't find the desired file, it may not end in ".TXT" or not be a text/ASCII file.)
- (9) Press the **EXECUTE** field to load the desired text file.
- (10) Press **Back to Lyr Edit** to return to the Edit Lyrics page (see above).
Now you're all set for the synchronization work:

- (11) Press the **Lyrics Synchro** field.

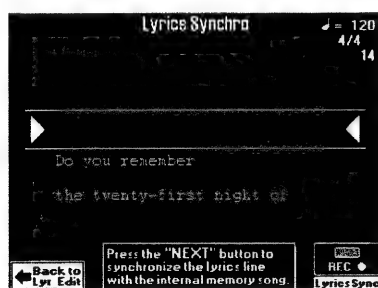


This display page should contain the first line of the text you imported. (This function can also be used to correct the synchronization of Lyrics data contained in a Tune 1000-format song you loaded.)

Here's what we're going to do: every line of the text we imported can be associated with a given quarter note of the song. We'll do this while the song is playing back. Synchronizing text lines is a matter of pressing the **NEXT** button on the beats where they should appear during normal playback of the Standard MIDI File. Each press of the **NEXT** button will associate the text line below the arrows (▶ ◀) with the quarter note where the button was pressed. The preceding line automatically scrolls above the (▶ ◀) section, while the following line will appear below the arrows.

- (12) Press **◀** to return to the beginning of the song or use **◀** or **▶** to jump to a measure that lies a little ahead of the place where the first line should be displayed during normal operation.

- (13) Press **REC** (Lyrics Sync).

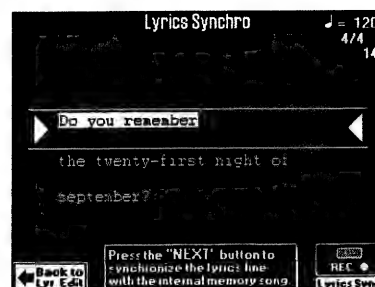


- (14) Press the **▶/■** button.

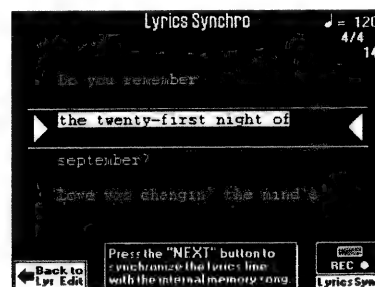


Playback (and Lyric synchronization recording) starts.

- (15) On the beat where the first text line should be displayed, press the **NEXT** button (front panel).



- (16) Repeat this at the quarter note where the second line should be displayed.

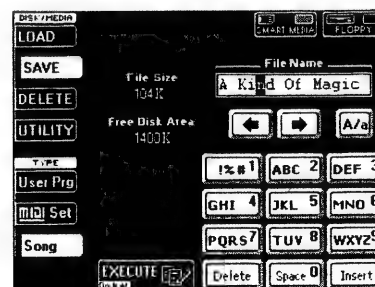


- (17) Keep pressing **NEXT** on all beats where the subsequent text lines should appear.

- (18) Press the **▶/■** button when all Lyrics data have been synchronized.

- (19) If you made a mistake somewhere, you can return to that measure using **◀** and start anew from that position. In that case, you will have to keep synchronizing the remaining text until the end of the song.

- (20) Press the **Save** field and save your song with the synchronized lyrics to disk or SmartMedia card.



- Enter the name (page 29).
- Press the **SMART MEDIA** or **FLOPPY** field to select the destination.
- Press the **EXECUTE** field.

'Utility' functions for Edit Lyrics

There are three functions you may want to use for managing Lyrics files, or songs with associated lyrics. All of them can be accessed via the Lyrics Edit menu (see page 96 for how to get there.)

Exporting the Lyrics data as text file

Here's what you need to do to export the Lyrics data contained in a Standard MIDI File as text data. This may be useful for editing or printing the lyrics using your computer.

Note: This only works if the Standard MIDI File in the DisCover 5's RAM memory contains lyrics data.

- (1) On the Lyrics Edit page, press the **TEXT Export** field.

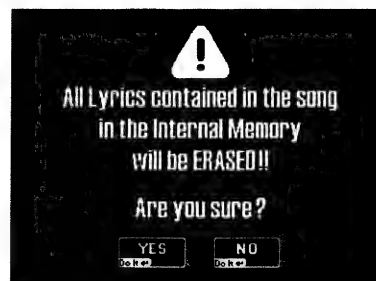


- (2) Name the text file.
This is only necessary if you do not agree with the preset name (i.e. the one of the song in question).
See page 29 for how to enter the desired name.
- (3) Press the **EXECUTE** field to save the file to disk.

Save without Lyrics

This function allows you to save the song in the DisCover 5's RAM to disk without the Lyrics data.

- (1) On the Lyrics Edit page, press the **Save without Lyrics** field.



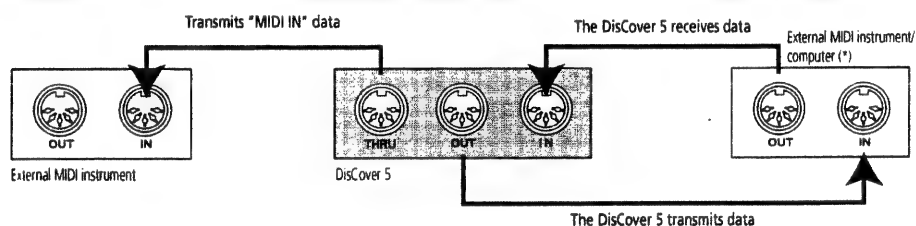
- (2) Press the **YES** field to erase all Lyrics data still present in the DisCover 5's RAM. This takes you to the SAVE Song page where you can save the MIDI data without lyrics. Press **NO** to return to the Edit Lyrics page without erasing the Lyrics.

12. MIDI

MIDI is short for Musical Instrument Digital Interface. The word refers to many things, the most obvious being a connector type that is used by musical instruments and other devices to exchange messages relating to the act of making music.

Each time you play on the DisCover 5's keyboard or start song playback, your instrument transmits MIDI data to its MIDI OUT socket. If you connect this socket to the MIDI IN socket of another instrument, that instrument may play the same notes as one of the DisCover 5's parts, select sounds, etc.

MIDI is a universal standard, which means that musical data can be sent to and received by instruments of different types and manufacturers. Furthermore, MIDI allows you to connect your DisCover 5 to a computer or hardware sequencer. Connect your DisCover 5 as shown below.



MIDI can simultaneously transmit and receive messages on 16 channels, so that up to 16 instruments can be controlled. Nowadays, most instruments -like your DisCover 5- are multitimbral, which means that they can play several musical parts with different sounds.

Note: All DisCover 5 parts are set to receive MIDI messages. If they do not seem to respond to the messages you send from the external controller, you should check the MIDI connections and the channel settings on the DisCover 5.

The transmit and receive channels of the Keyboard parts are set as follows:

Upper	MIDI channel 4
Lower	MIDI channel 11
M.Drums	MIDI channel 16

Note: The VOCAL HARMONIZER parts are not MIDI compatible and can therefore neither transmit, nor receive MIDI data.

The how-to's

Accessing the MIDI functions

Do the following to gain access to the MIDI functions.

- (1) Press the **[MENU]** button.

The display changes to:

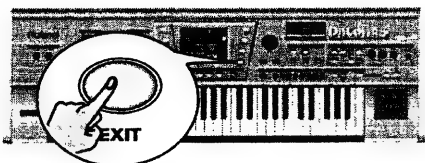


- (2) Press the **[MIDI]** field.



- (3) Do one of the following:
 - Press a **[1]~[8]** field to select a MIDI Set.
 - Press one or several "Macro Settings" fields to recall the corresponding presets (called "macros").
 - Press the **[Edit]** field to gain access to the MIDI parameters.
- (4) If you changed certain MIDI parameter settings, press the **[EXECUTE]** field to write them to a MIDI Set (page 103).

- (5) Press the **[EXIT]** button to return to the main page.



Working with Macros

The opening "MIDI" page contains three big fields with preset settings. All you need to do is press them to restore the default settings for the sections or aspects in question.

[Keyboard]: This field recalls the factory MIDI settings for the Keyboard parts (Upper, Lower, M.Drums). The most important (and practical) use for this field is to set the MIDI transmit/receive channels of the Keyboard parts and to switch off MIDI transmission/reception of the song parts.

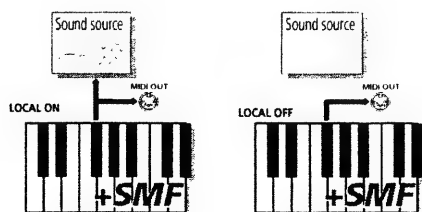
Note: This field applies to both reception (RX) and transmission (TX). The DisCover 5 indeed allows you to set separate TX and RX channels for each part.

[Song]: This field restores the factory settings for the DisCover 5's song parts. It also switches off the MIDI transmission and reception of the Keyboard parts. You may not have noticed it so far, but these are separate parts. Your DisCover 5 is indeed 20-part multitimbral.

[External Sequencer]: Prepares your DisCover 5 for use (and synchronization) with an external sequencer. The MIDI transmission of the Keyboard parts is switched on (they do not receive MIDI data), while the MIDI reception of the song parts is also activated (they do not transmit MIDI messages).

All Parts **[Local On]/[Local Off]**: These settings allow you to establish or remove the connection between the DisCover 5's keyboard/Song Player and the internal tone generator.

When set to **[Local On]** (default), playing on the DisCover 5's keyboard or playing back a song will cause the corresponding notes to sound. If you select **[Local Off]**, the corresponding MIDI messages are no longer sent to the internal tone generator – but they are still transmitted to the MIDI OUT port and hence to external MIDI instruments.



As soon as you press one of these fields, the number of the currently selected MIDI Set is indicated with an asterisk (*) to signal that the current settings no longer correspond to the written settings. See p. 103 for details about the MIDI Sets.

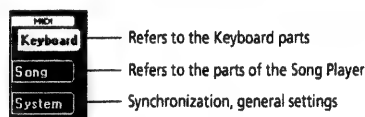
Editing procedure

After performing step (6) below, you will see a display page that works as follows. In fact, it uses the same system as the Vocal Harmonizer (Menu) and the Disk Media environment.

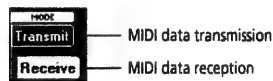
- (6) Press the **[Edit]** field on the first "MIDI" page.



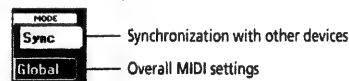
- (7) On the page that appears now, select the section whose parameters you wish to edit (left side):



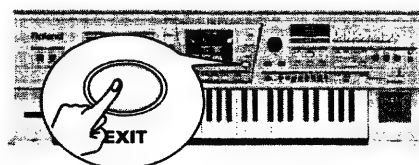
- (8) Select what you want to edit (for Keyboard and Song):



If you press the **[System]** field (see step (7)), the "MODE" options change:



- (9) Use the **[PREV]** and **[NEXT]** buttons to select the parameter you wish to edit, and set the desired value with the **[VALUE]** dial. Parameter fields can also be selected by pressing them.
- (10) Press the **[EXIT]** button to return to the main page.

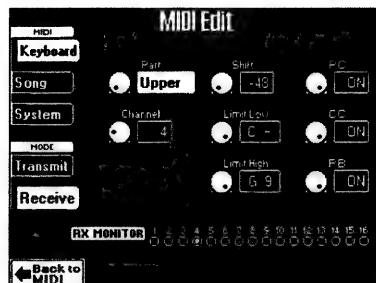


Editing MIDI parameters

Editing Keyboard and Song parameters

The Keyboard and Song parts have the same "Receive" and "Transmit" parameters, so we will discuss them only once.

● Receive parameters



□ RX Monitor

These indicator icons (1~16) light whenever the DisCover 5 receives MIDI data on the corresponding channel. This may help you decide which channel you need to assign to a given part.

□ Part

Use this parameter to select the part you want to edit. If you press MIDI [Keyboard], the options are: Upper, Lower, M.Drums. If you press MIDI [Song], the options are Track 1~Track 16. **Always** select the Part before changing the remaining parameters on this page.

□ Channel

(Off, 1~16, Off) Allows you to assign a MIDI receive channel to the selected part. The default settings usually work best, but you are most welcome to change them. Select "Off" for a part that shouldn't receive MIDI data.

Note: Unless you have a very good reason to do otherwise, we suggest you always select the same Transmit and Receive channel numbers for a part.

Note: Assigning the same channel to two or more parts is usually not a very good idea.

Note: For Song (SMF) parts, this also affects playback of the Standard MIDI Files.

□ Shift

(-48~48) This parameter allows you to transpose the received note messages before sending them to the DisCover 5's tone generator. You could change the pitch of the received MIDI note messages if you are used to playing a song (that is being received via MIDI) in another key than the one the data were programmed in. The maximum possible transposition is four octaves up (48) or down (-48). Each step represents a semitone.

□ Limit High/Limit Low

(C~G9) "Limit High" and "Limit Low" allow you to set the note range to be received. If not all note messages on the selected MIDI channel should be received by the selected part, set the range to the desired values. This may be necessary when controlling the DisCover 5 from a MIDI accordion that sends the chord and bass notes on the same channel.

Note: The Low Limit cannot be set to a higher value than the High Limit (and vice versa).

Note: Some instruments start at C-2 and end at G8 (instead of C-1 and G9). You may have to "add an octave" to the value you see on the screen of your computer or external sequencer.

□ Data filters

The remaining three fields allow you to specify whether the messages in question should be received (ON) or not (OFF).

PC—Program Change and Bank Select (CC00, CC32) messages. These messages are used to select Tones and Drum Sets (as well as User Programs, see below). "Bank Select" messages are in fact Control Change messages, which were added when it became clear that the maximum number of sounds selectable using Program Change messages (128) was no longer sufficient to access all sounds of a given instrument. (The DisCover 5 boasts 1,422 sounds.)

Do not forget to send a Program Change message after a Bank Select message because sending only Bank Select messages does nothing whatsoever. The correct order for sending these messages is (pay attention to the CPT values):

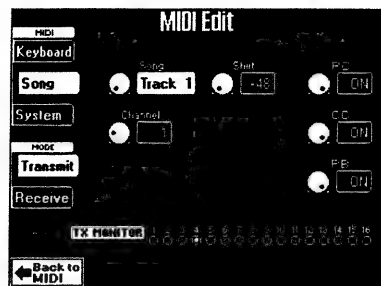
- 1.1.0 Bank Select CC00 + value
- 1.1.1 Bank Select CC32 + value
- 1.1.2 Program Change

CC—These messages control parameters such as modulation and pan. The function of a message is determined by its control change (e.g. ID) number. Here are some frequently used Control Changes that can be filtered using this parameter: Modulation (CC01), Volume (CC07), Expression (CC11), Pan(pot) (CC10), Hold 1 (CC64), Reverb Send Level (CC91), Chorus Send Level (CC93), RPN LSB, MSB (CC100/101), Data Entry (CC06/38), NRPN LSB, MSB (CC98/99).

Note: Though the DisCover 5's keyboard does not generate Channel Aftertouch messages, the sound source receives them (but they cannot be filtered).

PB—Allows you to specify whether or not Pitch Bend messages should be received.

● Transmit parameters



☐ TX Monitor

These indicator icons (1~16) light whenever the DisCover 5 (Keyboard, Song parts) transmits MIDI data on the corresponding channel.

☐ Part

Use this parameter to select the part you want to edit. If you press MIDI **Keyboard**, the options are: Upper, Lower, M.Drums. If you press MIDI **Song**, the options are Track 1~Track 16. **Always** select the Part before changing the remaining parameters on this page.

☐ Channel

(Off, 1~16, Off) Allows you to assign MIDI transmit channel to the selected part. The default settings usually work best, but you are most welcome to change them. Select "Off" for a part that shouldn't transmit MIDI data.

Note: Unless you have a very good reason to do otherwise, we suggest you always select the same Transmit and Receive channel numbers for a part.

Note: Assigning the same channel to two or more parts is usually not a very good idea.

☐ Shift

(-48~48) This parameter allows you to transpose the note messages before they are transmitted to an external MIDI instrument or computer. The maximum possible transposition is four octaves up (48) or down (-48). Each step represents a semitone.

☐ Data filters

The remaining three fields allow you to specify whether the messages in question should be transmitted (ON) or not (OFF).

PC—Program Change and Bank Select (CC00, CC32) messages. These messages are used to select Tones and Drum Sets (as well as User Programs, see below). See also the explanation for the "Receive" parameter of the same name.

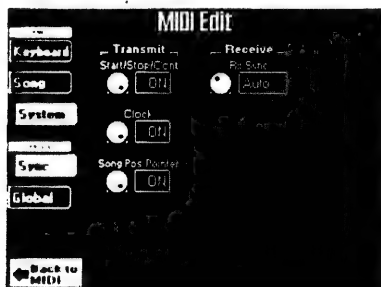
CC—These messages control parameters such as modulation and pan. The function of a message is determined by its control change (e.g. ID) number.

PB—Allows you to specify whether or not Pitch Bend messages should be transmitted.

Editing the System parameters

The following parameters apply to the DisCover 5 as a whole.

● Sync parameters



☐ Transmit

The Transmit Sync parameters allow you to specify whether or not the DisCover 5 should send MIDI realtime messages whenever you start the song playback. Sending MIDI realtime (start, stop, clock) messages has the advantage that you can synchronize external instruments or computers with your DisCover 5.

Start/Stop/Cont—(On/Off) If you activate this option, the DisCover 5 will only send start or stop messages whenever you start (or stop) song playback. In this case, no Clock messages are sent.

Clock—(On/Off) This option means that the Song player sends Clock messages (usual synchronization method).

Song Pos Pointer—(On/Off) If you select "ON", the Song player sends Song Position Pointer (SPP) messages. These messages are used to signal the current

playback position, so that the slaved (synchronized) drum machine, sequencer, etc., automatically jumps to the correct position.

Note: See your sequencer's etc. manual to find out whether it accepts Song Position Pointer messages.

☐ Receive: RX Sync

The RX Sync parameter allows you to specify whether and how the Song player should be synchronized to external sequencers or drum machines. The available options are:

Internal—The Song player will follow its own internal tempo.

Auto—This is a function for remote control of song playback (using a PK-5 dynamic MIDI pedal board, for example). If the DisCover 5 receives a MIDI Start message (FA), it waits for Clock messages. If those Clock messages are not received (a PK-5, for instance, doesn't send them), the DisCover 5 starts playback using its internal tempo. If, however, Clock messages (F8) follow after the Start message, the DisCover 5 uses the external tempo. You can nevertheless go on using the Song player without MIDI Start/Clock messages, which is not possible when you select "MIDI".

MIDI—Song playback can be started or stopped with MIDI realtime messages (Start, Stop, Clock) coming from an external clock source.

Remote—The Song player waits for a start message to start playback at its own tempo. When it receives a stop message, playback will stop.

● Global parameters



□ Transmit

Sys Exclusive—(On/Off) Use this parameter to specify whether (ON) or not (OFF) the DisCover 5 should send SysEx messages. Such messages are not standardized, so that each manufacturer can use them at lib for temporary (or permanent) changes to the way a part behaves. Changes to the effect processor settings, for instance, are only possible via SysEx messages.

Such messages may slow down playback on external MIDI instruments, or yield no effect at all, which is why you have the option to stop them from being transmitted in the first place.

User Prg PC Channel—(1~16, OFF) This parameter allows you to specify the MIDI channel (1~16) on which the DisCover 5 should send Program Change messages whenever you select a User Program. If you select a channel (1~16), such messages will be transmitted on that channel. Select "OFF" if no Program Changes should be transmitted.

Song Data Changes—(On/Off) This parameter allows you to specify how the original program changes of the songs you play back are transmitted via MIDI. Why "original"? That's because the DisCover 5 changes sound addresses (usually CC00 and CC32 values) so as to play back all songs with the best possible quality. If you set this parameter to "On", these realtime transformations are also transmitted to the MIDI OUT socket, in which case the receiving tone generator may drop certain parts (if it does not support the requested sound bank). If you select "Off" (default setting), the original sound addresses are transmitted to the DisCover 5's MIDI OUT socket. (But the internal tone generator continues to "enhance" the songs you play back – this parameter is only for MIDI transmission to external instruments.)

□ Receive

Sys Exclusive—(On/Off) Use this parameter to specify whether (ON) or not (OFF) the DisCover 5 should receive SysEx messages from other devices. See also the explanation above.

User Prg PC Channel—(1~16, OFF) This parameter allows you to specify the MIDI channel (1~16) whose Program Change messages will be used for switching User Programs on the DisCover 5. If you do not want to receive them, select "OFF".

Transpose—(On/Off) Use this parameter to specify whether note messages received via MIDI should be transposed according to the Transpose interval that is currently in effect (manual setting, Singer Key, Global).

MIDI Sets

MIDI Sets are memories for the settings you make in MIDI mode. The DisCover 5 has eight MIDI Set memories that you can use to change your MIDI configuration. You can link a MIDI Set to a User Program (page 85), and specify which MIDI Set should be loaded each time you switch on the DisCover 5 (see below). If you need to reset some or all MIDI parameters to their default values, loading the Macro Settings (page 100) may be a wiser choice than selecting a MIDI Set.

Writing a MIDI Set

- (1) If you are still on one of the "MIDI Edit" pages, press the **Back to MIDI** field. If not, press the **MENU** button and the **MIDI** field on the "Menu" display page.



- (2) Press the **Memorize** field.



- (3) Press the field that corresponds to the MIDI Set where you wish to save your MIDI settings ([1]~[8]).
- (4) Press the **EXECUTE** field. The display confirms that the settings have been written to the selected memory and returns to the "MIDI" page.

Selecting a MIDI Set

- (1) Press the **[MENU]** button.
The display changes to:



- (2) Press the **[MIDI]** field.



- (3) Press the **[1~8]** field that corresponds to the MIDI Set you need.

You can also select a Macro and work with those settings, in which case all eight MIDI Set indicator icons go dark.

- (4) Press the **[EXIT]** button to return to the main page.



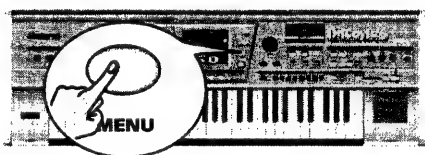
The main page looks as follows when you work with a MIDI Set:



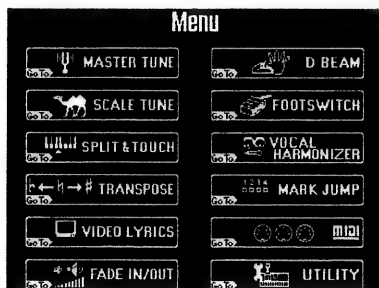
MIDI Set selection at power-on

Whenever you switch on the DisCover 5, it automatically selects the appropriate Macro settings. But maybe you prefer to be "operational" right away. In that case, tell the DisCover 5 which MIDI Set it should recall whenever you switch it on:

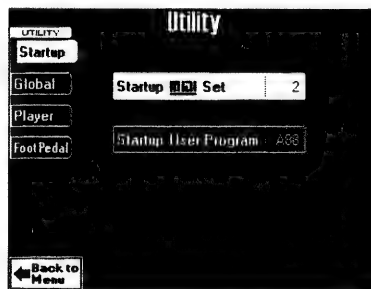
- (1) Press the **[MENU]** button.



The display changes to:



- (2) Press the **[UTILITY]** field. If the **[Startup]** field in the left corner is not displayed in white, press it.



- (3) Press the **[Startup MIDI Set]** field so that it is displayed in white.
- (4) Use the **[VALUE]** dial to select the MIDI Set to be recalled (1~8).
If you don't want any MIDI Set to be recalled, select "Off".
- (5) Press the **[EXIT]** button to return to the main page.

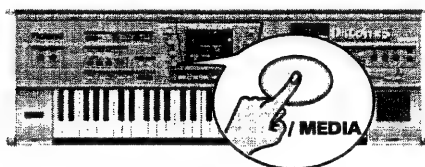
13. Disk/Media functions

The DisCover 5's Disk/Media functions allow you to save edited songs to disk or SmartMedia card, to save and load your User Programs, MIDI Sets, and Song Chains, to format floppy disks and SmartMedia cards, to delete files, and to copy disks and SmartMedia cards.

As a rule, it is wiser to work with a SmartMedia card. The DisCover 5 supports 4, 8, 16, 32, 64 and 128MB SmartMedia cards. You can also use 2DD or 2HD floppies, but the most helpful functions (Song Finder, User Program Finder, Chain function, automatic song links to User Programs) are only available for files on SmartMedia card. 2HD disks have twice the capacity of 2DD disks, so use 2HDs whenever you can.

The how-to's

- (1) Press the **DISK/MEDIA** button.



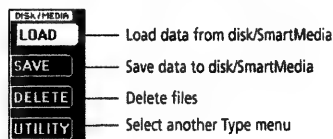
The display changes to:



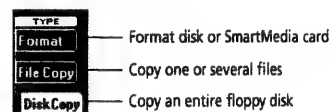
- (2) Insert a SmartMedia card into the slot, or a floppy disk into the drive.
 (3) Select the disk drive or SmartMedia card.



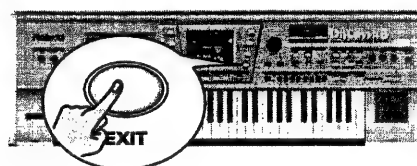
- (4) Select the function you need:



If you press the **UTILITY** field, the "TYPE" options (and page layout) change:



- (5) Do one of the following (if necessary):
- For **LOAD** operations, press the field that contains the name of the file you wish to load. Use the **←** **→** fields if the desired file is not currently displayed.
 - For **SAVE** operations, enter a name for the file you are about to save.
 - For **DELETE** operations, select the file you wish to dispose of.
 - For **UTILITY** operations, see page 108.
- (6) If available, press the **EXECUTE** field.
 (7) Press the **EXIT** button to return to the main page.



Load (from disk or SmartMedia)

The Load functions allow you to load User Program or MIDI Sets. Songs and Song Chains can be loaded via dedicated functions, which are explained elsewhere (page 70, 76).

● Load User Prg



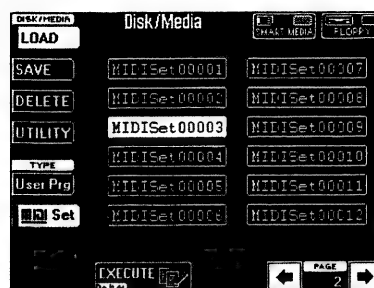
This is where you can load User Program "sets". These are groups of 128 User Programs that are always saved as a group.

- (1) Select the disk drive or SmartMedia card.
- (2) Press the field of the User Program Set whose data you wish to load.
If the desired name is not displayed, use the fields to scroll through the list.

Note: This function always replaces the contents of all 128 internal User Program memories. Use the Finder function if you only want to load one User Program from a set file (page 82).

- (3) Press the **EXECUTE** field to load the data.

● Load MIDI Set



This is where you can load MIDI Set "Sets". These are groups of 8 MIDI Sets that overwrite the contents of all 8 internal MIDI Set memories.

- (1) Select the disk drive or SmartMedia card.
- (2) Press the field of the MIDI Set whose data you wish to load.
If the desired name is not displayed, use the fields to scroll through the list.

Note: This function always replaces the contents of all 8 internal MIDI Set memories.

- (3) Press the **EXECUTE** field to load the data.

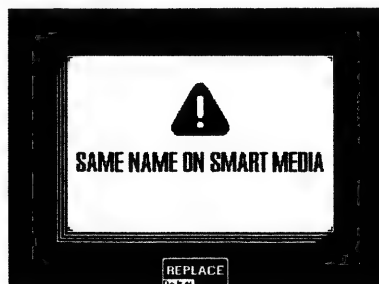
Save (to disk or SmartMedia)

In this manual and while designing the DisCover 5, we tried to make a clear distinction between "saving" and "writing/memorizing" data. The terms "write/memorize" are used to describe actions that cause certain settings to be saved to an internal memory. "Save", on the other hand refers to the act of copying internal memory settings to disk or card.

Note: When saving files to floppy disk whose "AVAIL AREA" size is smaller than the file(s) you wish to save, the DisCover 5 will stop operation and display "DISK ERROR". Note that this message does not necessarily mean that the disk is damaged. In any case, please check the "AVAIL AREA" and "FILE SIZE" values before saving files to disk.

● Important remark

If you select the floppy disk or SmartMedia card that contains the original version of the file you are about to save, the following message is displayed:



If you pressed the **FLOPPY** field, the message reads "SAME NAME ON DISK".

- Press the **REPLACE** field to overwrite the old version. —or—
- Press the **EXIT** button on the DisCover 5's front panel if you do not want to overwrite this file and return to the "Save" page. Then enter a different name (or select a different media).

● Save User Prg (set)



This function allows you to save all 128 User Programs as a set.

The "File Size" value indicates the capacity required to save the User Program Set to disk or SmartMedia card, while "Free Disk Area" tells you something about the remaining disk capacity.

- (1) Select the disk drive or SmartMedia card.
- (2) Enter the name for the file.
 - Use the \leftarrow and \rightarrow fields to select the position for which you wish to enter a new character.
 - Use the alphanumeric keypad in the right corner to enter the desired characters. This keypad works exactly like the keypad of a cellphone: you may have to press an alphanumeric field several times to select the desired character or number.
 - The $\overline{A/a}$ field allows you to switch between uppercase and lowercase characters.
 - The $\overline{\text{Delete}}$ field allows you to delete the inverted character.
 - Press $\overline{\text{Space}}$ to insert a blank (or the number "0").
 - If you forgot to insert a character, use \leftarrow or \rightarrow to select the position where the missing character should be inserted. Then press $\overline{\text{Insert}}$, followed by the character you wish to insert.

Note: The DisCover 5 supports both upper- and lower-case letters for file names. So choose whichever is more convenient (or clear).

Note: The DisCover 5 allows you to use long file names, but some windows are relatively short, so that only part of the names can be displayed. We therefore suggest using short file names (maximum 16 characters) whenever possible.

- (3) Press the $\overline{\text{EXECUTE}}$ field to save the data.

Note: Saving User Program Sets may take in excess of 10 minutes (especially if the card already contains several sets). This is due to the fact that the Database information needs to be updated for User Program Finder use. Do not switch off the DisCover 5 while this operation is in progress.

● Save MIDI Set



After programming 8 MIDI Sets, you may find that you need a few more and that you have to make room for the new MIDI Sets. To do so without losing the previously saved MIDI Sets, you must save the "old" set to SmartMedia card or disk. Even if you do not program more than 8

MIDI Sets, it is a good idea to make a backup copy of your MIDI Sets in case someone else starts fiddling around with your settings.

This function allows you to save all 8 MIDI Sets as a set.

- (1) Select the disk drive or SmartMedia card.
- (2) Enter the name for the file.

See page 107.

Note: The DisCover 5 supports both upper- and lower-case letters for file names. So choose whichever is more convenient (or clear).

- (3) Press the $\overline{\text{EXECUTE}}$ field to save the data.

● Save Song



This page allows you to save the song that is currently in the DisCover 5's RAM memory to SmartMedia card or floppy disk. Though you cannot record new songs, there are four reasons why you may want to use this function:

- to save the changes you made using the SONG MAKEUP TOOLS buttons (see page 87 and following);
- to save the newly programmed MARK JUMP locations (see page 69);
- to save a song under a different name;
- to prepare songs for use with the Singer Key function (automatic transposition). See the note on p. 29.

Note: The SONG MAKEUP and MARK JUMP settings can only be read by the DisCover 5 and are thus of no use to other sequencers or SMF players.

- (1) Select the disk drive or SmartMedia card.

Select $\overline{\text{SMART MEDIA}}$ if you wish to take advantage of the User Program Finder function (page 82) and work with User Programs to which song files have been linked (page 85).
- (2) Enter the name for the file.

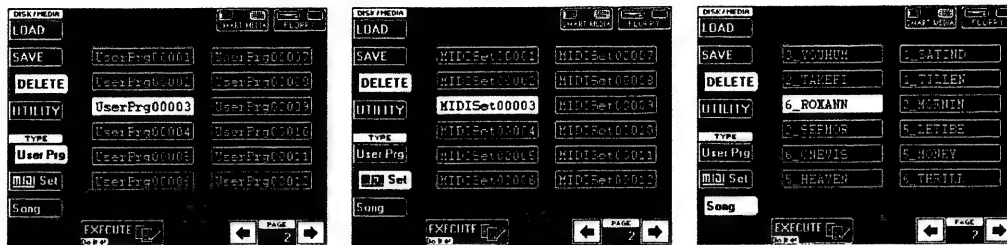
See page 107.

Note: The DisCover 5 supports both upper- and lower-case letters for file names. So choose whichever is more convenient (or clear).

- (3) Press the $\overline{\text{EXECUTE}}$ field to save the data.

Delete

Use these functions to delete the selected User Program set, MIDI Set "set" or song from SmartMedia card or floppy disk.



The Delete function allows you to erase the selected file, which may be necessary if the "Disk Full" or "SmartMedia Full" message is displayed when you try to save a file.

Carefully check whether you selected the right file type using the fields in the left column, and the right file via the fields in the middle.

Also note that User Program and MIDI Sets contain 128 or 8 different settings, which means that you may lose a lot more than originally intended. And if you delete a song that is used in a Song Chain, that

chain changes (loses one step), while a User Program whose Link function you activated no longer finds the required song.

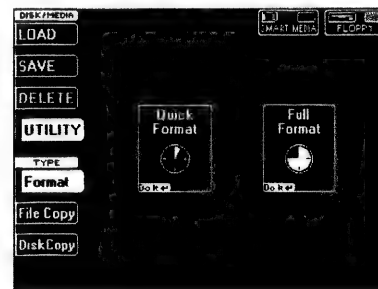
- (1) Select the disk drive or SmartMedia card.
- (2) Select the file type to be deleted.
- (3) Press the field of the file you want to delete. If the desired name is not displayed, use the fields to scroll through the list.
- (4) Check again whether you really selected the file you wanted to delete, then press **EXECUTE** to delete the file.

Note: The Delete operation cannot be undone.

Disk/Media Utility functions

The Utility functions allow you to format floppy disks or SmartMedia cards, and to copy files or entire disks.

- (1) Press the **DISK/MEDIA** button. The display changes to:
- (2) Press the **UTILITY** field, followed by the **Format**, **FileCopy** or **DiskCopy** field.



Format

This function allows you to format the inserted floppy disk or SmartMedia card.

It would be a good idea to also format floppy disks formatted for MS-DOS®, because that speeds up data access. SmartMedia cards must always be formatted on the DisCover 5: during formatting, the DisCover 5 indeed also creates a number of folders where your various files will be stored. An MS-DOS-formatted card might create problems.

The DisCover 5 provides two formatting options.

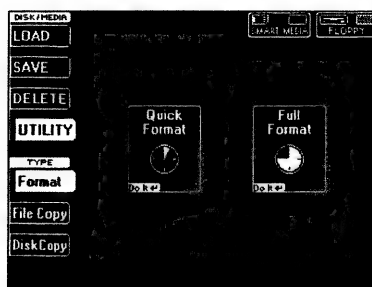
Note: Do not format the SmartMedia card supplied with your DisCover 5. It would be a pity to lose all the precious material it contains.

- (1) Defeat the disk's or SmartMedia card's write protection:
Floppy disk: Close the little "window" (page 6).

SmartMedia: Remove the sticker (page 7).

- (2) Insert the floppy disk into the drive, or the SmartMedia card into the slot.
- (3) Select the **Format** page (see above).
- (4) On the display page that appears now, press the **SMART MEDIA** or **FLOPPY** field.

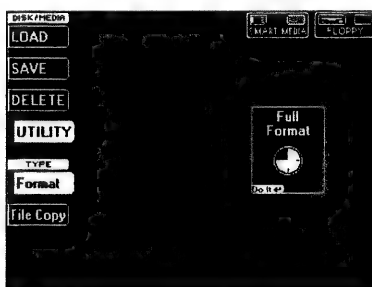
This obviously depends on whether you inserted a floppy disk or a SmartMedia card.



- (5) Press the field that corresponds to the type of formatting you want to use (only for floppy disks):

Quick Format Choose this option to "initialize" new (usually MS-DOS formatted) disks. This is a lot quicker than the "Full" option.

Full Format This option is only necessary for disks you used on platforms with a different data and formatting structure. SmartMedia cards can only be formatted in "Full" mode. That's why the display looks as follows:



The display now responds with:



(In the case of a floppy disk, the "SMART MEDIA" will read "FLOPPY", of course.)

- (6) Press the **YES** field to format your disk/card. Press **NO** to return to the previous display page without formatting.

If you press **YES**, the clock icon of the selected field (**Quick** or **Full**) indicates that the disk or card is being formatted.

- (7) Wait for the "Complete" message to appear, then select another Disk/Media function, or press the **EXIT** button to return to the main page.

Copy functions

The DisCover 5 provides several copy functions that allow you to copy one or several files, or even entire disks. Copying from disk to disk requires some "disk jockeying". As a rule, we recommend copying all files you need for your performances to a SmartMedia card. Cards are not only smaller, but they also hold a lot more data than floppy disks.

Copying files (FileCopy)

- Press the **DISK/MEDIA** button.
- Press the **UTILITY** field, followed by the **FileCopy** field.



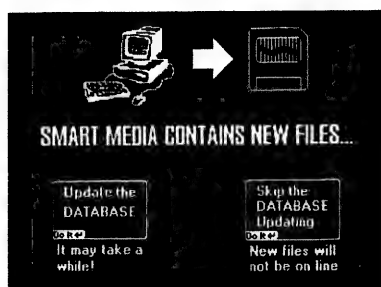
- (3) Press the field that corresponds to the file type you wish to copy:

Floppy into SmartMedia (ALL Songs) Before pressing this field, please read the following (the copy process starts as soon as you press this field, and no further actions are required). This option allows you to copy all song files (ending in ".MID") from the currently inserted floppy disk to the currently inserted SmartMedia card. This is a quick way of transferring songs you may have collected on floppy disks over the years to your "concert" SmartMedia card.

If your songs currently reside on your computer's hard disk, and if you have a device (possibly with a PCM/CIA or a floppy disk adapter) that allows you to save data to a SmartMedia card, you can also copy your songs using your

computer (rather than first transfer them to floppy, and then from floppy to your SmartMedia card).

If you then insert the card into the DisCover 5's slot, the following message appears:



It means that the DisCover 5 found files for which no Song Finder information is available.

- Press **Update the DATABASE** to make the new files "DisCover 5 savvy".

Note: Depending on the number of songs you copied to the SmartMedia card, this update may take some time. But it's worth it, so please be patient.

- Press the **Skip DATABASE Updating** field if you do not wish to update the database now. In that case, however, such new "PC songs" are "invisible" to the Finder.

Note: See your computer dealer for details about adapters that can be used for SmartMedia cards.

Notes about copying files to a SmartMedia card on your computer

The above procedure only works as expected if the following conditions are met:

- You will need a SmartMedia reader/writer to use a SmartMedia card on your PC.
- SmartMedia cards must be formatted by the DisCover 5, so that all the required directories are created for smooth operation.
- All **song files** (with the extension .MID or .KAR) must be copied to the "Put New Songs Here" folder on the card. Do not copy them to any other folder you may see on the card.
- All **User Programs** files (with extension .UPG) must be copied to the "Put New User Programs Here" folder on the card. Do not copy them to any other folder you may see on the card.
- Never copy several files by simply dragging the folder they reside in to the card icon (open the folder in question on your computer, and use "Select All" to select all files, if necessary).
- Never ever erase any file from the SmartMedia card, as this may damage the database file.

WARNING: Copying files from a disk means that the DisCover 5's RAM memory is erased. If you haven't yet saved your last song to disk or card, you should do so before proceeding.

User Prg Press this field to copy one or several User Program Sets, then proceed with step (4).

Note: The DisCover 5 does not support User Programs (or Performance Memory data) of other Roland instruments.

Song Press this field to copy one or several songs, then proceed with step (4).

MIDI Set Press this field to copy one or several MIDI Set "sets", then proceed with step (4).

Note: The DisCover 5 does not support MIDI Sets of other Roland instruments.

SONG Chain Press this field to copy one or several Song Chain files, then proceed with step (4). This only copies Chain files – not the songs they refer to.

Note: The DisCover 5 does not support Song Chains of other Roland instruments.

The display now changes to reflect your choice. It works the same for all four file types, so we'll discuss the following only once.



- (4) Select the source (From) and the destination (To).

Copy from → to: Press

Card → disk	From SMART MEDIA + To FLOPPY
Disk → card	From FLOPPY + To SMART MEDIA
Card → card*	From SMART MEDIA + To SMART MEDIA
Disk → disk*	From FLOPPY + To FLOPPY

(*) These two operations require that you change media during the copy operation, so please prepare a second card or disk.

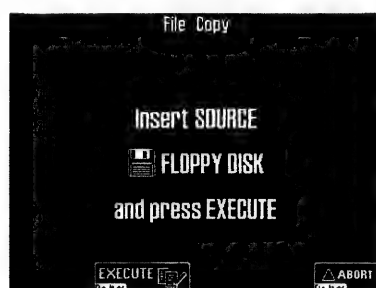
Note: Copying from SmartMedia card to floppy disk often leads to the following error message and should therefore be avoided. Remember that the DisCover 5 is far more powerful when used with SmartMedia cards.



- (5) Press the fields of all files you wish to copy. Selected fields are displayed on a white background.
 - If the desired name is not displayed, use the fields to scroll through the list.
 - Press the Select **[ALL]** field to select all files of the selected type (User Programs, Songs, MIDI Sets, or Song Chains).
 - Press the Select **[NONE]** field to cancel your file selections. This then means that no files will be copied.

Note: When copying files from media (SmartMedia/floppy disk) to media, if the "AVAIL AREA" size is smaller than the files you wish to copy, the DisCover 5 automatically stops the operation without displaying a message as soon as the media is full. Therefore, please check the available disk capacity before proceeding. And be sure to check the contents of the destination media immediately after the copy operation.

- (6) Press the **[EXECUTE]** field to start the copy operation.
For card → card and disk → disk copies (see the table), the DisCover 5 now asks you to insert the source ("From") media:



(There is a similar message for SmartMedia cards.)

Note: If the display tells you "Can't execute, song is running", you need to stop song playback. This message means that the function cannot be executed because that RAM memory is being used for song playback, which is why it is impossible to copy files.

- Enable the disk's/card's write protection and press the **[EXECUTE]** field. (Press **[ABORT]** if you do not want to proceed.)
To enable the write protection of a floppy disk, open the "little window" (see p. 6).

You are asked whether it is OK to overwrite all files on the destination media ("To") that have the same file names as the files you are about to copy.

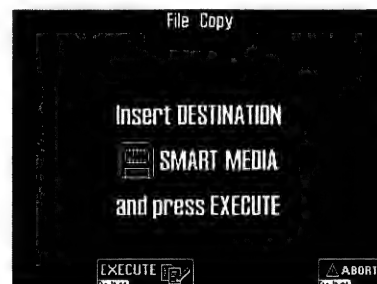


- (7) Press the **[YES]** field if it is OK to overwrite files with the same names on the destination media.

Press the **[NO]** field if files on the source ("From") media that have the same name as existing files on the destination ("To") media should not be copied (only files with "original" names will be copied in that case).

The data are copied and a "Complete" message confirms the end of the operation.

If you copy from card → card, or disk → disk (see the table above), the DisCover 5 copies the first chunk of data to its RAM memory, and may then ask you to insert the destination media:



(There is a similar message for floppy disks.)

- Remove the original card or floppy from the slot or drive and insert the one you wish to copy the data to.
- Press **[EXECUTE]** again (or **[ABORT]** to halt the copy operation).
The file(s) is/are now transferred from the DisCover 5's internal memory to the destination media.
- If the "Insert SOURCE" message appears again, return to the explanations under step (6) above.

When all files are copied, the following message appears:



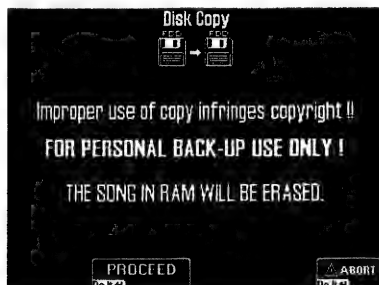
Note: Never remove the floppy disk or SmartMedia unless the DisCover 5 tells you to do so. Always wait for the above message to appear before returning to business as usual.

Copying floppy disks (DiskCopy)

You can also copy the entire contents of one floppy disk to another disk (without specifying the files manually). This function is not available for SmartMedia cards.

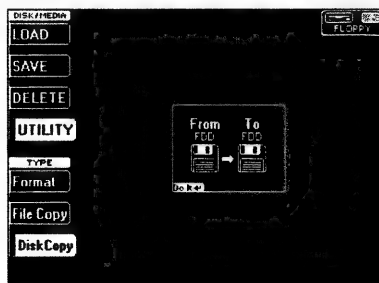
WARNING: Copying files from a disk means that the DisCover 5's RAM memory is erased. If you haven't yet saved your last song to disk or card, you should do so before proceeding.

- (1) Press the **DISK/MEDIA** button.
 - (2) Press the **UTILITY** field, followed by the **DiskCopy** field.
- The display now responds with a warning regarding copyright legislation.

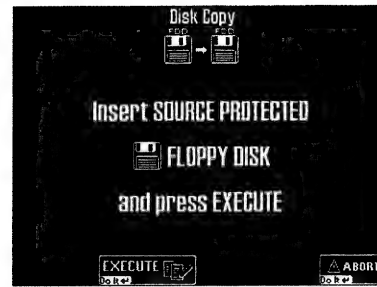


It means that you are not allowed to make copies of copyrighted material for friends, colleagues, or anyone else.

- (3) Press the **PROCEED** field to signal your agreement. (Press **ABORT** if you do not want to copy the inserted floppy disk's data after all.)
- (4) On the page that appears now, press the **DiskCopy** field.



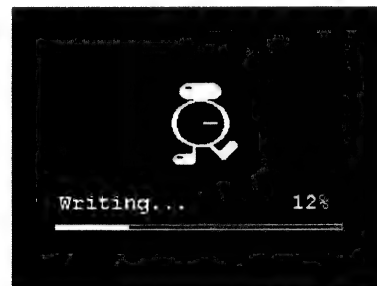
- (5) Press the big **Do it** field in the middle. The display now responds with:



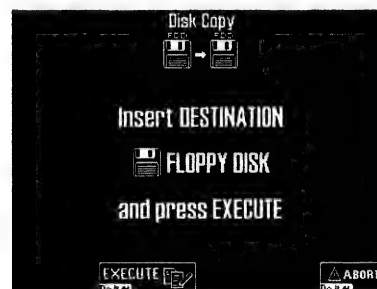
- (6) Slide the protect tab of the disk you wish to copy in the Protect position and insert the floppy into the disk drive.

Note: It will be impossible to copy the desired floppy disk if you do not write-protect it. In that case, the message "Source Disk unprotected" appears and the display returns to the above page.

- (7) Press the **EXECUTE** field to start the copy operation. (Press the **ABORT** field if you do not want to copy the floppy disk after all.)
- The display now shows a message to signal that some (or all) data are being copied to the DisCover 5's RAM memory.



Once the first data chunk has been loaded, following message appears:



- (8) Remove the original floppy (the SOURCE disk) from the drive and insert the one (DESTINATION) you wish to copy the data to.

Note: Be careful to set the PROTECT tab of the Destination disk to the WRITE (or OFF) position.

Note: You need to use the same disk type as the one of the Source disk. If that was a 2DD disk, insert a 2DD disk. If the Source disk is a 2HD disk, use a 2HD disk.

- (9) Press **EXECUTE** again.

This time, the data in the DisCover 5's RAM memory are copied (saved) to the destination disk. If all data were copied in one go, the "Function complete" message appears and you're done. If only part of the data was loaded from the source disk, the "Insert SOURCE Protected Floppy Disk" message appears again. In that case, go back to step (6) and continue until the message "OK Function Complete" is displayed.

- (10) Press the **EXIT** button to return to the main page.

There is no function for copying entire SmartMedia cards. Use the **ALL** field to select all files of a given type and copy them to your SmartMedia card. See also page 109 for tips about copying files from your computer's hard disk to SmartMedia. What you could do is: (a) copy the contents of the "original" SmartMedia card to your hard disk, and then (b) to another SmartMedia card.

14. Specifications

DisCover 5 Realtime Orchestrator

Keyboard		Other functions	
61 keys, touch sensitive		Interactive DEMO	Cover, Tones, Harmonizer
Sound source		Tone Finder	34 families (categories)
PCM samples		Favorite Tone	16, programmable
Max polyphony	64 voices	Song Finder	Up to 99,000 songs, managed via database
Tones	1422 (20 Mbytes)		
Drum Sets	44 incl. ORIENTAL Drum Set	Next Song Reserve	Yes
Multitimbral parts	19	Keyboard parts	Upper, Lower, MDrums
Compatibility	GM2/GS	Fade OUT/IN	Programmable
Effects		Octave	-4~+4, separate for Upper, Lower, MDrums
Reverb	8 types	Singer Key	Automatic song transposition (-6~+5)
Chorus	8 types		
Multi-FX	47 types		
Display type & controls		Connections	
1/4 VGA touch screen, backlit LCD		MIDI	In, Out, Thru
Contrast knob		Outputs	(L/mono, Right), Phones
Panel controls	Alpha Dial Data/Tempo wheel, D-Beam (with macro settings), Bender/ Modulation lever, Master Volume, Keyboard/Song Balance knob, MIC Gain knob, Voice Level, Harmony Level, Effect Level	Pedals	Hold Footswitch, Footswitch (programmable), Foot Pedal (expression)
Song playback		Input	Harmonizer Microphone
Realtime Song player		Harmonizer Outputs	Separate (L, R) or mixed to main outputs
Mark/Jump	4 programmable locations	Video Output	Composite, independent Lyrics transmission
Song Makeup Tools	2 modes: Manual and Cover (Macros: 30 ALL, 18 Drum, 24 Bass)		
Lyrics	Text Import/Export, Text to lyrics sync, Lyrics in display, Chord display	Others	
Minus One	Programmable	Power Supply	100V - 117V - 230V - 240V
User Programs		Dimensions (mm)	1184 (W) x 371 (D) x 127 (H) mm
128, plus User Program Finder (realtime access to User Programs on SmartMedia), User Program Hold (Tone, Harmonizer)		Weight	12.5 kg
Data storage		Supplied accessories	Owner's Manual, power cord, SmartMedia card (64MB) with data
SmartMedia card	4, 8, 16, 32, 64, 128MB	Options	
Floppy disk	FDD 3.5" 2HD/2DD	DR-10, DR-20	Microphones
File types managed	SMF, User Programs, MIDI Sets, Song Chain, .txt files	DP-2, DP-6, FS-5U	Footswitches
Vocal Harmonizer		RH-25, RG-50	Headphones
4 presets	Talk, Voice-FX 12 presets, Auto Tune, Singer (programmable)	EV-5, EV-7	Expression pedals
2 harmony modes	Small (30 macros), Ensemble (30 macros)	KC-500/300/100	Keyboard amplifiers
Vocoder	24 macros	KS-12	Keyboard stand
Voice Effects	Noise Gate, Compressor, Reverb (9 types), Delay (9 types), programmable		
Harmony Effects	Reverb (9 types), Delay (9 types), Chorus (9 types), programmable		

Note: Specifications are subject to change without prior notice.

MIDI Implementation Chart

[Realtime Orchestrator]

Date: September 2002

Model: DisCover 5

Version: 1.00

Function...		Transmitted		Recognized		Remarks
Basic Channel	Default Changed	1~16	1~16, Off	1~16	1~16, Off	19 parts Upper= 4, Lower= 11, M.Drums= 16, 1 logical part
Mode	Default Message Altered	Mode 3 Mode 3, 4 (M=1) *****		Mode 3 Mode 3, 4 (M=1)		*2
Note Number	True Voice	0~127 *****		0~127 0~127		
Velocity	Note ON Note OFF	O X		O X		
After Touch	Key's Ch's	X X		O O		
Pitch Bend		O	*1	O	*1	
Control Change	0,32	O	*1	O	*1	Bank Select
	1	O	*1	O	*1	Modulation
	6, 38	O	*1	O	*1	Data Entry
	7	O	*1	O	*1	Volume
	10	O	*1	O	*1	Panpot
	11	O	*1	O	*1	Expression
	64	O	*1	O	*1	Hold 1
	66	O	*1	O	*1	Sostenuto
	67	O	*1	O	*1	Soft
	71	O	*1	O	*1	Filter Resonance
	72	O	*1	O	*1	Release Time
	73	O	*1	O	*1	Attack Time
	74	O	*1	O	*1	Cutoff
	75	O	*1	O	*1	Decay Time
	76	O	*1	O	*1	Vibrato Rate
	77	O	*1	O	*1	Vibrato Depth
	78	O	*1	O	*1	Vibrato Delay
	91	O	*1	O (Reverb)	*1	Effect 1 Depth
	93	O	*1	O (Chorus)	*1	Effect 3 Depth
	98, 99	O	*1	O	*1	NRPN LSB, MSB
	100, 101	O	*1	O	*1	RPN LSB, MSB
Program Change	True #	O *****		O 0~127		Program Number 1~128
System Exclusive		O	*1	O	*1	
System Common	Song Position Pointer Song Sel Tune	O X X		O X X		
System Real Time	Clock Commands	O O	*1 *1	O O		
Aux Messages	All Sounds Off Reset All Controllers Local On/Off All Notes Off Active Sense Reset	X X O X O X	*1	O (120, 126, 127) O (121) O O (123-125) O X		
Notes	*1 O X is selectable *2 Recognized as M=1 even if M≠1					

Mode 1: OMNI ON, POLY
Mode 3: OMNI OFF, POLY

Mode 2: OMNI ON, MONO
Mode 4: OMNI OFF, MONO

O: Yes
X: No

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Information

When you need repair service, call your nearest Roland Service Center or authorized Roland distributor in your country as shown below.

AFRICA

EGYPT

Al Fanny Trading Office
9, EBN Hagar Al Askalany Street,
ARD El Golf, Heliopolis,
Cairo 11341, EGYPT
TEL: 20-2-417-1828

REUNION

Maison FO - YAM Marcel
25 Rue Jules Hermann,
Chaudron - BP797 97 491
Ste Clotilde Cedex,
REUNION ISLAND
TEL: (0262) 218-429

SOUTH AFRICA

**That Other Music Shop
(PTY) Ltd.**
11 Melle St., Braamfontein,
Johannesburg, SOUTH AFRICA

P.O.Box 32918, Braamfontein 2017
Johannesburg, SOUTH AFRICA
TEL: (011) 403 4105

Paul Bothner (PTY) Ltd.
17 Werdmuller Centre,
Main Road, Claremont 7708
SOUTH AFRICA

P.O.Box 23032, Claremont 7735,
SOUTH AFRICA
TEL: (021) 674 4030

ASIA

CHINA

**Roland Shanghai Electronics
Co., Ltd.**
5F, No.150 Pingliang Road
Shanghai, CHINA
TEL: (021) 5580-0800

**Roland Shanghai Electronics
Co., Ltd.
(BEIJING OFFICE)**
10F, No.18 Anhuaxili
Chaoyang District, Beijing,
CHINA
TEL: (010) 6426-5050

HONG KONG

**Tom Lee Music Co., Ltd.
Service Division**
22-32 Pun Shan Street, Tsuen
Wan, New Territories,
HONG KONG
TEL: 2415 0911

INDIA

Rivera Digitec (India) Pvt. Ltd.
409, Nirman Kendra Mahalaxmi
Flats Compound Off. Dr. Edwin
Moses Road, Mumbai-400011,
INDIA
TEL: (022) 2493 9051

INDONESIA

PT Citra IntiRama
Jl. Cideng Timur No. 151-150
Jakarta Pusat
INDONESIA
TEL: (021) 6324170

KOREA

Cosmos Corporation
1461-9, Secho-Dong,
Secho Ku, Seoul, KOREA
TEL: (02) 3486-8855

MALAYSIA

BENTLEY MUSIC SDN BHD
140 & 142, Jalan Bukit Bintang
55100 Kuala Lumpur, MALAYSIA
TEL: (03) 2144-3333

PHILIPPINES

G.A. Yupangco & Co. Inc.
339 Gil J. Puyat Avenue
Makati, Metro Manila 1200,
PHILIPPINES
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Instruments Co. L.L.C.**
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NORTH AMERICA

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U. S. A.

Roland Corporation U.S.
5100 S. Eastern Avenue
Los Angeles, CA 90040-2938,
U. S. A.
TEL: (323) 890 3700



This product complies with the requirements of European Directives EMC 89/336/EEC and LVD 73/23/EEC.

For EU Countries

FEDERAL COMMUNICATIONS COMMISSION RADIO FREQUENCY INTERFERENCE STATEMENT

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference, and
- (2) This device must accept any interference received, including interference that may cause undesired operation.

Unauthorized changes or modification to this system can void the users authority to operate this equipment.
This equipment requires shielded interface cables in order to meet FCC class B Limit.

For the USA

NOTICE

This Class B digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

AVIS

Cet appareil numérique de la classe B respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

For Canada

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